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REVERSAL OF IMPAIRMENT LOSSES, FIRM PERFORMANCE AND REPORTING INCENTIVES: EVIDENCE FROM MALAYSIA

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This thesis is submitted to the
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in fulfilment of the requirements for the
Doctor of Philosophy in Commerce

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Declaration

I hereby declare that the materials contained in this thesis have not been previously submitted for a degree in this or any other university. I further declare that this thesis is solely base on my own research.

Acknowledgements

First and foremost, I give thanks to God, for His blessings, grace and mercy granted to me throughout all the days of my life.

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Abstract

Malaysian Financial Reporting Standard (FRS) No. 136, *Impairment of Assets,* was issued in 2005. The standard requires public listed companies to report their non-current assets at no more than their recoverable amount. When the value of impaired assets is recovered, or partly recovered, FRS 136 requires the impairment charges to be reversed to its new recoverable amount. This study tests whether the reversal of impairment losses by Malaysian firms is more closely associated with economic reasons or reporting incentives. The sample of this study consists of 182 public companies listed on Bursa Malaysia (formerly known as the Kuala Lumpur Stock Exchange) that reported reversals of their impairment charges during the period 2006-2009. These firms are matched with firms which do not reverse impairment on the basis of industrial classification and size. In the year of reversal, this study finds that the reversal firms are more profitable (before reversals) than their matched firms. On average, the Malaysian stock market values the reversals of impairment losses positively. These results suggest that the reversals generally reflect increases in the value of the previously impaired assets. After partitioning firms that are likely to manage earnings and those that are not, this study finds that there are some Malaysian firms which reverse the impairment charges to manage earnings. Their reversals are not value-relevant, and are negatively associated with future firm performance. On the other hand, the reversals of firms which are deemed not to be earnings managers are positively associated with both future firm performance and current stock price performance, and this is the dominant motivation for the reversal of impairment charges in Malaysia. In further analysis, this study provides evidence that the opportunistic reversals are also associated with other earnings management manifestations, namely abnormal working capital accruals and the motivation to avoid earnings declines. In general, the findings suggest that the fair value measurement in impairment standard provides useful information to the users of financial statements.

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List of abbreviations

AWCA	Abnormal working capital accruals
CEO	Chief Executive Officer
FASB	Financial Accounting Standard Board
FCCG	Finance Committee on Corporate Governance
FRS	Financial Reporting Standard
GAAP	General Accounting Accepted Principles
GDP	Growth Domestic Product
IAS	International Accounting Standard
IASB	International Accounting Standards Board
IASC	International Accounting Standards Committee
IFRS	International Financial Reporting Standard
IPO	Initial Public Offering
KLSE	Kuala Lumpur Stock Exchange
MASB	Malaysian Accounting Standards Board
MESDAQ	Malaysian Exchange of Securities Dealing and Automated Quotation
PLC	Public Listed Company
PPE	Property, Plant and Equipment
SEC	Securities and Exchange Commission
SFAC	Statement of Financial Accounting Concepts
SFAS	Statement of Financial Accounting Standards
UK	United Kingdom
US	United States

CHAPTER 1: INTRODUCTION

1.1 Background and motivation

In 2005, the Malaysian Accounting Standards Board (MASB) issued Financial Reporting Standard (FRS) No. 136, *Impairment of Assets*. The standard requires public companies listed on Bursa Malaysia (formerly known as the Kuala Lumpur Stock Exchange, KLSE) to restate their non-current assets at the lower of its carrying amount or recoverable amount. This recognition ensures that the assets carried in the balance sheet are not overstated. FRS 136 is based on International Accounting Standard (IAS) 36, *Impairment of Assets*, issued by the International Accounting Standards Board[1] (IASB). Impairment losses occur when the carrying value of the assets is higher than their recoverable amount. According to the standard, this difference should be recorded as a loss in the income statement, and such loss should be recognised whenever the situation arises. Subsequent to the recognition of an impairment loss, the recoverable amount for the impaired asset might increase, due to internal or external factors. The standard requires that, if there is an indication that the impairment loss previously recognised for a particular asset (other than goodwill) no longer exists, the company needs to recalculate the recoverable amount of the asset; and, if the amount is higher than its carrying amount, the impairment loss recognised in prior periods needs to be reversed, or partially reversed.

Recoverable amount is measured as the higher of the asset's fair value less the cost to sell, and its value in use. In FRS 136, fair value less cost to sell is defined as "the amount obtainable from the sale of an asset or cash-generating unit in an arm's length transaction

[1]The International Accounting Standards Board (IASB) is an independent accounting standard-setter responsible for developing International Financial Reporting Standards (IFRS).

between knowledgeable, willing parties, less the costs of disposal", and value in use is defined as "the present value of the future cash flows expected to be derived from an asset or cash-generating unit". Both fair value less cost to sell and value in use are different from historical cost measurement, and involve some estimates in their determination. For example, under paragraph 26 of the standard, in the case where the current bid prices are unavailable in determining the fair value less cost to sell, the reporting entity needs to estimate the value based on the price of the most recent transaction related to the asset. Similarly, the determination of value in use requires managers to estimate future cash flows that are expected to derive from the asset, including the expectations about possible variations in the amount or timing of those future cash flows (Malaysian Accounting Standards Board [MASB], 2005, para. 30). The use of estimates in the determination of the recoverable amount grants managers discretion, which could enhance the informativeness of earnings. Managers can use their knowledge about the business, and choose accounting reporting methods and estimates that match the business economic situation. However, the discretion in the standard also provides an opportunity for self-interest managers to manage earnings. This study examines whether the application of fair value and value in use measurements in FRS 136 have been used by the Malaysian companies to provide useful information to the users of financial statements or to manage earnings. In particular, this study focuses on the reversal of impairment losses reporting, and tests which motives; informative or opportunistic reversal recognition, is the dominant motivation of reversal reporting in Malaysia.

Most standard-setters around the world emphasise the reporting of a financial position that fairly reflects the firm's value. The issuance of impairment standards for non-current assets is an example of the improvement in accounting reporting standards, which has switched from historical cost accounting to fair value accounting. It is argued that fair value accounting is a

better measurement for reporting because it reflects the relevant and current value of the assets (SFAS[2] No. 157). Financial disclosures that uses fair value also provides investors with insight into prevailing market values, further helping to ensure the usefulness of financial reports for stakeholders in assessing risk, return and the valuation of the firm (SFAS No. 157). Herrmann et al. (2006) also argue that fair values of property, plant and equipment provide greater feedback value and more timely financial information. Thus, the application of fair value/value in use measurement in the impairment standard by public companies, if applied in an unbiased manner, should provide valuable information to users.

The use of fair value/value in use measurement in the impairment standard is consistent with the objective of the financial reporting conceptual framework, because it provides relevant information to the users. The IASB's Conceptual Framework states that the objective of financial reporting is to provide information to assist users in making economic decisions, such as investment, credit and similar resource allocation decisions. Three qualitative characteristics of accounting information described in the framework are relevance, comparability and timeliness. Relevance refers to the capability of financial information to make a difference in the decisions made by users. Financial information is useful if it has predictive and/or confirmatory value. Comparability means that the information regarding a reporting entity can be compared with similar information concerning other entities, or with similar information relating to the same entity for another period or another date. Timeliness means that the information is available to decision-makers in sufficient time to be capable of influencing their decisions. These characteristics are closely related with reporting an asset at fair value in the financial statements of the reporting entity.

[2] Statement of Financial Accounting Standard, FASB.

Fair value accounting is increasingly being adopted by many countries across the world. International Financial Reporting Standards (IFRS) are placing much more emphasis on the use of fair value in the measurement of assets and liabilities. The process began over 25 years ago, and the application of fair value measurement is required in many national standards (Cairns, 2006). In general, fair value accounting offers a means to measure assets and liabilities that appear on a reporting entity's balance sheet. IFRS 13, *Fair Value Measurement*, defines fair value as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date" (IASB, 2012). The term "fair value" is a general term in IFRS, and is applicable to all assets and liabilities measurements, irrespective of whether the balance sheet amount is actively traded or not in the open market. The term "market value" is used as a fair value measure for assets and liabilities that are actively traded in the open market. This is the first and preferred measure for fair value. For assets, liabilities and equity components where quoted prices in an active market are unavailable, the IASB requires the use of market information and accepted valuation techniques. Therefore, the entity needs to estimate fair value using market information. If the assets, liabilities and equity items are not traded in an active market, the estimation of fair value is difficult. In this situation, the IASB prohibits the use of estimated fair value, because it cannot be reliably determined.

In US GAAP (as cited in Landsman, 2007), fair value is defined as "The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants". In the Statement of Financial Accounting Statement (SFAS) No. 157, *Fair Value Measurements,* the FASB (as cited in Landsman, 2007) establishes a framework for measuring fair value, and develops a hierarchy of preferences for the measurement of fair value. Level 1 estimates, the preferred level, are the fair value measures based on the quoted

prices of the assets and liabilities. Level 2 estimates are those based on the market prices of similar or related assets and liabilities. Lastly, Level 3 estimates are those based on reporting entity estimates, and are allowed to be used in the absence of information, as in Levels 1 and 2.

Several accounting studies support the argument that fair value measurement provides greater predictive value than historical cost measurement (Aboody, Barth & Kasznik, 1999; Barth & Clinch, 1998). In general, these studies document that the revaluation of non-current assets explains future firm performance. The findings support the argument that reporting an asset at a revalued amount provides the predictive value to users. Fair value of an asset also provides feedback value to users. Feedback value is defined in SFAC No. 2 as "the quality of information that enables users to confirm or correct prior expectation". The value, at historical cost, on the acquisition date of an asset is equivalent to the fair value. However, fair value changes over time, and thus, reporting an asset at fair value on the balance sheet subsequent to the acquisition of the asset provides valuable feedback to users. It helps users to confirm or correct their expectations relating to the asset based on current economic conditions. On the other hand, historical cost provides "book value" information of the asset, where it is equivalent to the original cost minus accumulated depreciation. Book value may provide feedback value in the wrong direction, because it systematically decreases over time, even when the underlying asset is appreciating (Herrmann, Saudagaran & Thomas, 2006).

Although fair value accounting is argued as a better measurement method, compared to historical cost accounting, the opponents of the method claim that the measurement of certain assets cannot be determined reliably when no active market exists. Management must *estimate* the assets fair value, which can be subject to discretion or manipulation. As

explained in the introduction of this chapter, the use of an estimate in projecting future cash flows may provide managers with a wide degree of discretion. Managers may engage in opportunistic earnings recognition, using the estimates to increase or reduce earnings for their private benefits.

The recognition of opportunistic earnings, even if it is not in violation of the accounting standards, may lead to inaccurate information about the company and a shifting of profits/losses to different periods. This practice produces less reliable earnings information that does not reflect a firm's financial performance. It reduces the quality of reported earnings, and its usefulness for investment decisions, thus reducing investor confidence in the financial reports. However, accounting earnings are more reliable, and of higher quality, when managers' opportunistic behaviour is controlled through monitoring systems. Agency theory suggests that problems created by moral hazard can be mitigated by governance mechanisms, such as those that promote careful contracting and close monitoring of employee activities (Eisenhardt, 1989). Hence, it is crucial for an organisation to have an effective corporate governance mechanism to safeguard the rights of the investors in getting the true and fair information of the company (Abdul Rahman & Mohamed Ali, 2006). Corporate governance is a crucial tool designed to ensure that the company's resources are employed for the benefit of the shareholders **(**Dechow, Sloan & Sweeney, 1996).

In general, the primary objective of monitoring mechanisms is to resolve the agency problems by aligning management's interests with the interests of shareholders (Jensen & Meckling, 1976; Healy & Palepu, 2001). The management tends to manage earnings when the incentives to do so are high. For example, managers are likely to manage earnings to achieve earnings benchmarks (Burgstahler, 1997; Burgstahler & Dichev, 1997; Degeorge,

Patel & Zeckhauser, 1999), to avoid debt covenant violation (Sweeney, 1994; DeFond & Jiambalvo, 1994), to increase managers' compensation (Healy, 1985), and to influence the share price (Teoh, Welch & Wong, 1998b; Dechow & Shrand, 2004). Hence, the monitoring provided by a good standard of corporate governance is crucial in reducing management's ability to manage earnings. In Malaysia, the Code on Corporate Governance (MCCG) was introduced by the Security Commission of Malaysia in 2001,[3] as a response to the 1997/98 Asian financial crisis and a number of business collapses in Malaysia. The main objective of the codes is to improve the monitoring role of the board of directors, and to provide guidelines in relation to the criteria and structure of an ideal board committee.

1.2 Objectives and methodology of the study

The objective of this study is to investigate the application of FRS 136, *Impairment of Assets*, by Malaysian public companies in the preparation of their financial statements. It examines whether firms reverse the previously recorded impairment losses for economic reasons or to manage earnings. FRS 136 is an adoption of IAS 36 in Malaysia. Such a principles-based standard should allow managers to appropriately communicate their private information, and thereby improve the informativeness of earnings in relation to the economic position of the company (Barth, Landsman & Lang, 2008). The application of the standard also involves many estimates and judgments (Titard & Pariser, 1996) which may provide an opportunity for managers to manage earnings (Healy & Wahlen, 1999; Duh et al., 2009).

This study also investigates whether the motivation to reverse the impairment losses is associated with other manifestations of earnings management. It examines whether the

[3] To date, the Security Commission of Malaysia has issued three versions of the code. The latest version is MCCG 2012. Before that, the last was MCCG 2007.

impairment loss reversals relate to abnormal accruals and incentives to avoid earnings declines. The expectation is that firms with high abnormal accruals and firms that are likely to avoid earnings declines are more likely to report reversals opportunistically. This study also examines the effectiveness of corporate governance mechanisms in monitoring the opportunistic behaviour of managers. Corporate governance is essential to protect the rights of shareholders.

In summary, the research questions of this study are:

1. Does the reversal of impairment loss reporting in Malaysia portray the reality of economic performance, or is it associated with opportunistic earnings management behaviour?
2. Is reversal reporting associated with other manifestations of earnings management?
3. What is the influence of corporate governance in reversal reporting?

To answer the research questions, the study analyses a sample of Malaysian public companies that recognise at least one reversal of an impairment loss in their income statements during 2006 to 2009. The reversal firms in the sample are matched with firms which do not reverse impairments, on the basis of industrial classification and size. The data are analysed using univariate and multivariate tests. In the univariate analysis, the return on equity ratios of reversal firms and control firms are compared. If Malaysian public firms reverse the impairment charges for economic reasons, the firms should perform better than the control firms, because such reversals should reflect the recovery of the impaired assets through the improved operating performance of the assets. In the multivariate analysis, firm performance measures are regressed on the reversals recognised by the sample firms. Reversals are also

regressed on manifestations of earnings management, to establish if managerial opportunism plays any role in impairment reversals.

1.3 Contributions of the study

This study contributes to the body of knowledge in financial reporting of fair value/value in use, asset impairment literature, earnings management and corporate governance. Prior studies investigating the value relevance of fair value measurement focus on banks and financial assets. This study provides evidence that reporting non-financial assets at fair value is relevant to users. Fair value measurement in the reversal decisions provides information concerning future firm performance. The evidence in this study reveals that reversals by firms with less incentives to manage earnings are related to future firm performance. This indicates that reporting an asset at fair value or value in use is, to some extent, reliable, and provides predictive value (as described in the IASB conceptual framework) to users of financial statements. Hence, the application of fair value measurement in the impairment standard helps the reporting entity to achieve the objective of financial reporting, as described in the IASB's conceptual framework. The findings also support the efforts of the IASB and FASB to continue issuing standards relating to fair value measurement, disclosure and recognition. Although measurement errors and reporting incentives may affect the objective of fair value and value in use measurements, this study demonstrates that the benefits of the application of fair value and value in use measurement may outweigh the self-interest fair value measurement.

Previous studies detailing asset impairment provide extensive evidence on opportunistic impairment recognition. They relate the impairment announcement and recognition to the

firm's performance and stock-market reaction. In general, those studies provide evidence that the impaired assets perform worse in the future, indicating that firms are suffering from the impaired assets. To date, there are limited studies examining the reversals of impairment charges. For example, Duh, Lee and Lin (2009), and Zhang, Lu, and Ye (2010), examine the recognition of opportunistic reversal in Taiwan and mainland China. Collectively, these studies conclude that firms reverse the impairment charges primarily to manage earnings. In Malaysia, only a few studies examine impairment reporting, particularly focusing on compliance to the standard. For example, Laili, Carlin and Finch (2009) investigate the compliance of Malaysian firms in relation to FRS 136 audited by the "Big 4" firms. They report substantial cross-sectional variation among the sample of Big 4 Malaysian audit firms, and distinctly poor compliance levels. Unlike prior studies on impairment reversals, this study examines both motives for reversals; that is, those reported for economic reasons and those due to the recognition of opportunistic reversals. This is consistent with two perspectives of earnings management: the informative perspective and the opportunistic perspectives (Beneish, 2001). The flexibility in accounting standards may be used by managers to opportunistically recognise the accruals. However, it also allows managers to signal their private knowledge about the underlying economic condition of the firm. This study provides evidence that reversal firms, on average, recognise the unrealised gain that reflects the changes in non-current asset values. Thus, the discretionary element in FRS 136 allows managers to communicate their expectations regarding current and future firm performance, and this is the dominant motivation for the reversal of impairment charges in Malaysia. This study also provides evidence that some firms reverse the impairment charges opportunistically. In summary, this study identifies two motivations pertaining to reversal recognition by the Malaysian public firms: one group of companies (the majority) reverses

the impairment charges for economic reasons, while the other group (the minority) reports the reversals to manage earnings.

Prior studies on earnings management focus more on aggregate accruals models to detect earnings management. The interpretation of the findings using aggregate measurement is still controversial, due to the difficulty in separating discretionary and nondiscretionary accruals. McNichols (2000) suggests that future research on earnings management should depart from its high reliance on the aggregate accruals approach. Dechow, Hutton, Kim and Sloan (2012) suggest that, in future research, earnings management could be detected with improved test power using reversal accrual in individual accounts, such as goodwill impairment and property, plant and equipment. A small volume of published research in earnings management using specific accruals also provides an attractive area for research. The findings of this research are beneficial to standard-setters and regulators, as the specific standard being used to manage earnings is identified. The evidence could help future improvement in the development of the standard. Thus, the findings of this study contribute to, and extend, the literature on earnings management using specific accruals. The study provides direct evidence on the use of the specific standard FRS 136, *Impairment of Assets*, to manage earnings. It is relevant to the general literature pertaining to the existence of earnings management under IFRS, but, unlike other studies, it provides evidence based on a specific accrual.

This study links earnings management using specific accruals to other manifestations of earnings management (i.e. the aggregate measure of earnings management, the DeFond and Park (2001) model) and the motivation to avoid earnings declines. Most prior studies examine specific accruals and aggregate measures of earnings management separately.

Studies that relate the specific accruals to aggregate measures do not examine extensively the relationship between both measures of earnings management.[4] This study is unique compared to other earnings management studies on specific accruals. It identifies opportunistic reversal recognition by examining the level of abnormal accruals, in addition to the motivation to avoid earnings declines. As firms may use various techniques and incentives to manage earnings, firms with high abnormal accruals may also use reversals to manage earnings. This study provides evidence that the opportunistic reversals are associated with abnormal accruals and incentives to avoid earnings declines. The findings from this study suggest that research in this area should not consider each reporting incentive in isolation. This is because firms' management may use more than one type of accrual to manage earnings.

The findings from this study also contribute to the current corporate governance literature available. Prior studies examine the efficacy of corporate governance in mitigating opportunistic earnings reporting using an aggregate measure of earnings management. The findings from this study support the argument that good corporate governance practices are also crucial in mitigating opportunistic reporting under a specific standard. Studies on non-current asset impairment document that CEO change is a significant determinant for impairment recognition (Strong & Meyer, 1987; Elliot & Shaw, 1988). This study provides further evidence that the change in management is also associated with the reversals of impairment losses. Some new management recognises impairment charges in the year of appointment, with an intention to reverse the charges later when there are incentives to do so.

[4] For example, Duh et al. (2009) examine the difference of discretionary abnormal accruals measured using the Modified Jones Model between reversal firms and control firms, but it is not significant, and they conclude that the aggregate measure (Modified Jones Model) may fail to address managers' use of accounting discretion, as provided by an accounting standard to manage earnings.

1.4 Organisation of the study

This thesis is divided into six chapters. Chapter 2 reviews the reporting requirements under FRS 136, and the related literature on asset impairment and impairment reversal, reporting issues of fair value accounting, and prior literature on earnings management and corporate governance. This is followed by Chapter 3, which discusses the methodology employed in this study. It presents the data and sample selection, and discussions of three empirical analyses in this study; analysis on the information content of reversals, analysis on the influence of reporting incentives in reversals, and the link between opportunistic reporting and the motivation to avoid earnings declines. Chapter 4 presents the findings from the analysis of the association between reversals and firm performance. Chapter 5 reports the findings on the influence of reporting incentives on the information content of reversals. Chapter 6 subsequently presents the findings from the analysis of the association between reversals and the motivation to avoid earnings declines. Lastly, Chapter 7 concludes the study with a summary of the results, and suggestions for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter reviews issues of fair value accounting and value in use, in the context of FRS 136, *Impairment of Assets*. It also reviews the earnings management and corporate governance literature. Section 2.2 presents the issue of fair value accounting. Section 2.3 discusses the concept and requirements of FRS 136, *Impairment of Assets*, and the accounting treatment for impairment reversals, and reviews the literature on asset impairment and impairment reversals. The section also discusses the application of fair value measurement in the recognition and measurement of reversal of impairment losses. Section 2.4 provides an overview of the research issues in earnings management. Among others, the issues include the incentives for earnings management, types of earnings management and the several methods used in the earnings management literature to detect this behaviour. Section 2.5 reviews the literature relating to corporate governance's role in mitigating earnings management. The last section summarises the content of the chapter.

2.2 The move to fair value accounting

There is an increasing trend across the world to adopt fair value accounting in the preparation and presentation of financial statements. In general, fair value accounting is a method used to report assets and liabilities at the market price. Under this method, at the acquisition date, an asset purchased is recorded at cost. Subsequent to the initial recognition, the value of the asset is adjusted to the current value, and the changes are reported in the income statements. In contrast, under historical cost accounting, the changes in the value of the assets are not

adjusted, and the assets are reported in the balance sheet at book value: cost minus accumulated depreciation.

Capital market regulators and standard setters in many jurisdictions believe that fair value provides more relevant measures of assets, liabilities and earnings than historical cost, because it reflects current information (Danbolt & Rees, 2008). They also believe that the measure appears to meet the conceptual framework of financial reporting better than other measurements (Whittington, 2008). This is because fair value information fulfils the characteristics of useful information required by the framework (i.e. comparability and timely information). Herrmann et al. (2006) add that fair value provides predictive value to the users of financial statements. Such value helps the users to predict the future profitability of the firm.

Accounting standard-setters around the world have issued standards requiring the recognition of assets and liabilities at fair value and changes in their fair value in income statements. Accounting standards issued by the IASB are accepted and adopted in many countries, including Malaysia. The IASB has issued IFRSs, and allows the measurement of assets and liabilities at fair value in most of its accounting standards. In fact, the use of fair value accounting has long been required under UK GAAP (Cairns, 2006). Furthermore, in initial recognition of assets and liabilities, the use of fair value measurement has long been required under International Accounting Standards (IAS)[5]. The same accounting treatment is required for the revaluation of property, plant and equipment since the introduction of IAS 16, *Accounting for Property, Plant and Equipment*, in 1982. In general, IFRS requires the use of fair value measurement in four main accounting treatments: for the measurement of

[5] IAS is a series of accounting standards issued by the IASC between 1973 and 2001.

transactions at initial recognition; for the allocation of the initial amount at which a transaction is recognised among its constituent parts; for the subsequent measurement of the assets and liabilities; and in the determination of the recoverable amount during impairment testing (Cairns, 2006). Two key fair value standards issued by the IASB are IAS 32, *Financial Instruments: Disclosure and Presentation*, and IAS 39, *Financial Instruments: Recognition and Measurements.* In 2011, the IASB issued IFRS 13, *Fair Value Measurement*, which set out a framework for measuring fair value in a single IFRS. In the US, the FASB has issued several standards that require the measurement and disclosure of accounting amounts using fair values. Among the most significant are those standards related to the financial instruments, such as SFAS No. 107, *Disclosures about Fair Value of Financial Instruments*, and SFAS No. 119, *Disclosures about Derivative Financial Instruments and Fair Value of Financial Instruments.*

In Malaysia, the accounting standards issued by the MASB were based on IASB Standards, with additional guidance tailored to deal with specific issues that are not addressed in the IAS/IFRS, illustrations or additional clarification for the better understanding of the context of the standards, and compliance with local laws and regulations. In 2008, the MASB issued a statement regarding its plans to bring Malaysia to full convergence with the IFRS. From 1 January 2012, Malaysia undertook a full convergence of Malaysian accounting standards to IFRS. On 19 November 2011, the MASB issued a new MASB-approved accounting framework, named the "Malaysian Financial Reporting Standards (MFRS) Framework". This framework will cause accounting standards in Malaysia to be fully IFRS-compliant.

As the Malaysian accounting standards are based on the IFRS, the use of fair value measurement is also a requirement of Malaysian public companies, in preparing their

financial statements. Until 1 January 2013, the MASB has issued three fair value accounting standards: FRS 132, *Financial Instruments: Presentation* (equivalent to IAS 32), and FRS 139, *Financial Instruments: Recognition and Measurement* (equivalent to IAS 39), issued on February 2006, and FRS 13, *Fair Value Measurement* (equivalent to IFRS 13), issued on November 2011.

2.2.1 Prior studies on fair value accounting

Landsman (2007) reviews capital market studies on the value relevance of fair value information to investors. In general, he concludes that disclosed and recognised fair values are informative for investors. However, the degree of informativeness is affected by the measurement error and sources of information, external and internal appraisers. In the UK and Australia, upward revaluation is permitted. Studies in these jurisdictions examine the information content of revalued assets at fair value. Using a large sample of Australian firms, Easton, Eddey and Harris (1993) examine the association between revaluation of tangible long-lived assets and stock market prices. They document that the assets have incremental explanatory power relative to other earnings components. Similarly, Barth and Clinch (1998) conduct a similar analysis on the revaluation of financial, tangible and intangible assets, and find that revalued investments are incrementally priced. A positive association is also found between intangible assets revaluation and share prices. They find little evidence indicating that independent appraiser-based revaluation is more value-relevant than director-based estimates. Cotter and Richardson (2002) test whether there are differences between the appraisals made by internal and external appraisers. They find that independent appraisers are more likely to be used for the revaluations of land and buildings, and directors are more likely for investments, plant and equipment and identifiable assets.

Aboody et al. (1999) extend the previous studies on the fair value measurement, by examining the association between revaluations of fixed assets and firm performance, measured using accounting-based measures and market-based measures. They report evidence that supports the relevance of fair value measurement. In particular, they find that upward revaluations are positively associated with changes in future firm performance, and that current-year revaluations are positively priced by the market. However, the study also finds that managerial incentives affect the usefulness of revaluations. They report that the relationship between revaluations and firm performance is weaker for high debt-to-equity firms. In an overview of the valuation of property, plant and equipment, Herrmann et al. (2006) posit that fair value measurement for property, plant and equipment is more value-relevant to decision-makers. They argue that the fair values are helpful in predicting future profits, provide relevant information regarding dividend restrictions and more timely financial information.

Much of the fair value studies in the US focus on assessing the relevance and reliability of fair value measures of financial instruments in banks, since banks are largely comprised of financial assets and liabilities. Barth (1994) examines the value relevance of investment securities in US banks that are reported at fair value. The study reports that the fair values are incrementally associated with bank share prices. However, the study also finds mixed results concerning whether unrecognised securities' gains and losses provide incremental explanatory power relative to other components of income. The study claims that errors in estimating the fair values are the primary explanation for the mixed results. Using a sample of banks, with data pertaining to 1992 and 1993, Nelson (1996) assesses the value relevance of the fair values of bank assets and liabilities disclosed under SFAS 107. Consistent with findings in Barth (1994), the study reports that the fair values of investment securities are

incrementally informative to investors. Venkatachalam (1996) evaluates the association between the fair values of banks' derivatives disclosures provided under SFAS No. 119 and the share prices of the banks. Findings from the study suggest that the fair value estimates explain cross-sectional variation in share prices. A recent study by Kanagaretnam, Mathieu and Shehata (2009) examines the value relevance of fair value information for a sample of Canadian firms that are listed in the US stock exchange. They report that changes in the fair value of available-for-sale investments are positively valued by the market.

In Malaysia, Hassan and Saleh (2010) examine the value relevance of financial instruments disclosure by 484 Malaysian public companies, from 1999 to 2003. In particular, they examine whether each disclosure requirement, as stated in Malaysian accounting standard no. 24 (MASB 24),[6] *Financial Instruments: Disclosure and Presentation*, and fair value information are positively valued by the Malaysian market. They find that both the disclosure quality of financial instruments information and fair value information are value-relevant. Kwong (2010) investigates the value relevance of the book value of equity and earnings before and after the adoption of IFRS. He highlights that some major attributes of financial reporting after the convergence with the IFRS include the measurement of balance sheet items using fair value and the recognition of fair value gain or loss in income statements. He reports that book value and earnings are significant in jointly explaining the variations in their associated market values. When the IFRS became mandatory to reporting entities in the Malaysian market, the role of earnings and income statements in the stock market valuation became increasingly important, compared to the role of the book value of equity. Based on these two studies, overall, the Malaysian market perceives that fair value information is value-relevant in its decision-making.

[6] This is an old Malaysian accounting standard issued in 2001, before the issuance of FRS 132, *Financial Instruments: Disclosure and Presentation*, in 2006.

2.2.2 Limitations of fair value measurement

Although fair value accounting is argued as a better accounting measure compared to historical cost accounting, however, in practice, fair value may not be well-defined. The guidance to determine the fair value is described in the IASB and FASB GAAP. However, the measurement for certain assets cannot be determined reliably when no active market exists for the assets. This is a major problem for non-financial assets (Landsman, 2007). The limitation is a cost to investors, because the fair value measurement might not be measured with sufficient precision to help them assess adequately the firm's financial position and earnings potential. In the absence of an active market, management must estimate the assets fair value, which can be subject to discretion or manipulation. Estimates in projecting future cash flows may provide managers with a wide degree of discretion regarding which rules to apply. As documented in the earnings management literature, the discretionary element in accounting standards may be exploited, since it provides both the opportunity and incentives for managers to decide when to inflate the assets value and/or earnings for their private benefits.

Landsman (2007) claims that having to rely on managers' estimates of asset and liability fair value introduces the general problem of information asymmetry. In fair value estimates, managers possess private information regarding the appropriate values to select for model inputs, in addition to the true underlying economic value of an asset to the firm. Lhaopadchan (2010) reviews the accounting treatment and reporting consequences of the application of fair value measurement in respect of acquired goodwill. She claims that managerial self-interest and earnings management concerns appear to motivate many goodwill impairment decisions.

In summary, the use of fair value in the measurement of assets and liabilities in financial statements receives substantial support from capital market regulators and standard-setters. The fair value measure provides useful information to users of the financial statement in their economic decision-making. Such financial information is believed to meet the financial reporting conceptual framework because of the qualitative characteristics provided by fair value (i.e. comparability, timely information and predictive value). However, there are some criticisms concerning the reliability of the fair value measurement, particularly in relation to non-financial assets with no active market. Estimates are used to determine the fair value of such assets, and the flexibility given in the determination of the fair value may open an opportunity for earnings manipulation.

2.3 FRS 136, *Impairment of Assets*, and prior studies

The reporting requirements and accounting procedures as described in Malaysian Financial Reporting Standard (FRS) No. 136, *Impairment of Assets*, prior literature on assets impairments/impairment reversals and the use of fair value in impairment testing is reviewed in the following sections.

2.3.1 The reporting requirements under FRS 136

FRS 136 was issued in 2005, and became effective from the financial year beginning 1 January 2006. The main objective of the standard is to ensure that the carrying amount of an asset does not exceed its recoverable amount. The standard supersedes FRS 136_{2004}, which was formerly known as MASB 23. The latter standard provides only little guidance on accounting for impaired assets. Before the issuance of both standards, accounting treatment

of asset impairment was diverse, and no specific standard outlined when, how and how much should be recognised. Previously, companies generally wrote-down an asset when there was evidence of permanent impairment in the ability of the impaired assets to recover, with the write-down reported as a loss in the income statement. The inconsistencies in measuring and reporting an asset impairment and lack of authoritative guidance reduce the reliability and comparability of financial statements (Titard & Pariser, 1996). Thus, FASB[7] and IASB[8] issue a standard dealing specifically with this economic event, which provides comprehensive guidance on the treatment of assets impairment. The main differences between asset impairment and asset write-down are that an asset impairment test is performed for a class of assets where an assessment needs to be performed at each balance sheet date, and the carrying amount needs to be reduced to the recoverable amount, which is measured as the higher of fair value less the cost of disposal and value in use. Meanwhile, for asset write-down, an assessment is only performed for a particular asset when there is a permanent diminution of the asset, and the carrying amount is reduced to the fair value of the asset.

FRS 136 is based on International Accounting Standard (IAS) 36, *Impairment of Assets*, issued by the International Accounting Standards Board (IASB). Initially, IAS 36, *Impairment of Assets*, was issued on June 1998, and became effective from 1 July 1999. On 31 March 2004, the standard was revised. The IASB developed this revised IAS as part of the board project on the development of an accounting standard for business combination, IFRS 3, *Business Combination*. Among the main changes in this standard are the frequency of impairment testing, the measuring of value in use, identifying the cash-generating unit to which an asset belongs, allocating goodwill to cash-generating units, the timing of an impairment test for goodwill and the prohibition of reversal for goodwill. On 22 May 2008,

[7] The FASB has issued the Statement of Financial Accounting Standard (SFAS) No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets* (formerly know as SFAS No. 121).
[8] The IASB has issued IAS 36, *Impairment of Assets*, to deal with accounting for impairment.

the IAS 36 was firstly amended, in relation to the disclosure of estimates used to determine the recoverable amount, and, secondly, on 16 April 2009, regarding the units of accounting for goodwill impairment testing using segments.

In line with Malaysian Accounting Standards Board's (MASB) plan, in convergence with the IFRS, Malaysian FRSs are modelled on the IFRS. The issuance of a standard related to the impairment of assets began in 2002, when MASB issued MASB 23, *Impairment of Assets*, and this was followed by FRS 136_{2004}. This standard is equivalent to IAS 36, issued by the IASB. Later, in 2005, FRS 136 was issued, superseding the old FRS. The objective of FRS 136 is to ensure that the carrying value of an asset does not exceed its recoverable amount. The carrying value is the book value of the assets, while the recoverable value is the higher of an asset's net selling price and its value in use. An impairment loss occurs when the carrying value is higher than the recoverable amount. This difference should be recorded as a loss in the income statement, and such loss should be accrued whenever the situation arises. An enterprise should assess, at each balance sheet date, whether there is any indication that an asset may be impaired. If any such indication exists, the enterprise should estimate the recoverable amount of the asset. Subsequent to the recognition of an impairment loss, the recoverable amount for the impaired asset might increase due to internal or external factors. The standard requires that, if there is an indication that the impairment loss previously recognised for a particular asset (other than goodwill) no longer exists, the company needs to recalculate the recoverable amount for the asset; and, if the recoverable amount for the current period is higher than its carrying amount, the impairment loss recognised in prior periods needs to be reversed. Indications of reversal include: the increase in the asset's market value; significant changes with a favourable effect on the entity that have taken place during the period in the technological, market, economic or legal environment; the reduction

of the market interest rate; significant changes in the extent or manner an asset is used; and, lastly, the economic performance of an asset which is, or will be, better in the future.

2.3.2 Prior studies on impairment after the issuance of the impairment standard

Studies on asset impairment after the issuance of the impairment standard focus on the response of the managers to the mandatory requirement for impairment testing. Reinstein and Lander (2004) conduct a survey, discussing how accountants, auditors and financial analysts view the new impairment standard. They report that the impairment standard is believed to improve financial reporting more effectively than the previous standard. The application of the standard encourages the reporting entity to report its non-current assets which reflect the current value of the assets. Li, Shroff, Venkataraman and Zhang (2011) examine the information content of goodwill impairment loss from the perspective of market participants. They find that investors and financial analysts lower their expectations concerning the announcement of an impairment loss. Impairment loss also appears to be a leading indicator of a decline in future profitability. They argue that the reaction can be largely attributed to investors revising their expectations of future performance based on the information conveyed by the impairment.

However, the standard has been criticised as giving management substantial flexibility to exercise judgments in determining and reporting an impairment loss (Titard & Pariser, 1996; Healy & Wahlen, 1999; Alciatore et al., 1998; Riedl, 2004). For example, determining an appropriate discount rate that reflects current market assessments and the appropriate risks will often be difficult. This process requires consideration and input from financial management, line management and, perhaps, valuation professionals. Input from these parties

will also be required to formulate assumptions regarding growth rates used to project cash flows until the end of the asset's useful life, which also requires significant judgment to formulate. Carlin and Finch (2010) analyse the variances between independent risk-adjusted estimates of firm discount rates and those adopted by 124 Australian and New Zealand-based firms. They find that the firms apply lower than expected discount rates, and interpret the evidence as an opportunistic exercise of discretion, to avoid unwanted impairment losses. Titard and Pariser (1996) also argue that the international accounting standards give managers considerable discretion in regard to the timing and the value of write-downs of impaired assets. FRS 136 requires that the impairment test should be made on every reporting date, and the recognition can only be made if the indication of impairment exists. This condition provides discretion for management as to the timing of the asset write-down. In addition, the amount of impairment depends on the market value of assets and estimated future cash flows. The use of estimates in projecting future cash flows provides discretion for managers to determine the amount of impairment and the reversals (Sevin & Schroeder, 2005). When managers are provided with choices in determining the value of assets, expenses and the profits of their firms, this accentuates the risks encountered when creative or aggressive accounting are employed (Healy & Wahlen, 1999).

A descriptive study by Finch (2006), regarding the recognition of impairment by large Australian listed firms, finds that managers are taking a very conservative approach to the calculation of impairment, with a goodwill impairment of only 0.02% of the goodwill value and average implied effective life, across all firms of 75.5 years for intangible assets. The author argues that firms may be engaged in creative accounting by reporting asset impairment, which results in the increase of reported earnings and the higher book value of assets. Sevin and Schroeder (2005) examine whether SFAS 142, *Goodwill and Other*

Intangible Assets, provides an opportunity for earnings management using firms that recognised an impairment loss in 2002. They report that a significantly higher proportion of small firms reported negative earnings in 2002, as opposed to the previous year. They suggest that the standard is used more by small firms with negative earnings as part of a "big bath" strategy. Similarly, Jordan and Clark (2004) examine Fortune 100 companies reporting goodwill impairment in the initial year of the issuance of the standard on goodwill impairment. They report that firms taking goodwill impairment charges in the year of study possess significantly lower earnings than their counterparts, which do not record the write-down, suggesting that the firms adopted the big bath strategy. Their result is robust, when the two groups of companies recorded similar earning levels in the previous year. In the US, Riedl (2004) examines the use of SFAS No. 121, *Accounting for the Impairment of Long-Lived Assets*, for big bath behaviour of firms before and after the issuance of the standard. The result displays a higher association between impairment reporting and "big bath" behaviour after the issuance of the standard, and this behaviour is more likely to reflect opportunistic reporting by managers than providing private information of the firms performance. Riedl suggests that, consistent with criticisms of this standard, the reporting of impairment under the new standard has decreased in quality. Lapointe-Antunes, Cormier, and Magnan (2009) examine the goodwill impairment recorded by Canadian firms after the adoption of the revised standard on purchased goodwill. They report a negative relationship between reported losses and share price. They interpret this result as consistent with investors' perceptions of losses as sufficiently reliable measurements to incorporate within investment decisions. In another study of listed Swedish corporations, CEO replacement was found to be positively associated with impairment recognition (Broberg, Collin, Tagesson, Axelsson & Echele, 2007). The authors conclude that the corporations, to a certain extent, use impairment charges to regulate earnings. A recent study by Bens, Heltzer and Segal (2011)

examine the effect of fair value measurement on the information content of goodwill impairment following the implementation of SFAS No. 142, *Goodwill and Other Intangible Assets*. They find that the move to fair value has not increased the information content of goodwill write-offs, but rather, has somewhat reduced it. They claim that their evidence is consistent with the critics of SFAS 142; that is, fair value tests are easier to manipulate and, therefore, the results are less informative for investors.

In Malaysia, Carlin, Finch, and Laili (2008) examine the compliance with disclosure requirements as set out under FRS 136, using the 36 largest Malaysian listed companies in 2006. They find that the compliance level is unsatisfactory, and that there is substantial variation in the disclosure information provided by the firms, pertaining to impairment testing. They highlight some possible explanations. Among others are the misinterpretation of the materiality rules and their impact on disclosure, the need for the exercising of judgement and teething problems, and the implementation of the new process. A recent study in 2010, by the Financial Statements Review Committee, a committee established under the Malaysian Institute of Accountant (MIA), reports that the disclosures by some selected public companies, as required by accounting standards, are not complete and adequate. Among the standards with which companies fail to fully comply is FRS 136. The companies fail to disclose the following: indicators of impairment; whether the recoverable amount is fair value less the cost to sell or value in use; and, if the loss is reversed, what the indicator that leads to such reversal.

2.3.3 Prior studies on asset write-downs before the issuance of the impairment standard

Before the issuance of FRS 136, the accounting for asset impairment is dependent on the reporting entity decision, and is recorded as an assets write-down only when there is a permanent reduction of the assets' value. Substantial accounting studies investigate the asset write-down reporting behaviour before the issuance of the standard on impairment.[9] Most prior studies on assets write-down focus on the examination of market reaction to the announcement of assets write-down, the magnitude of impairment and the frequency of occurrence. Strong and Meyer (1987) investigate asset write-downs among 120 firms during the period 1981-1985. For each write-down firm, they compare the financial performance before write-down to the non-impaired firms in the same industry. Financial performance is measured by the total return to shareholders, the market-to-book ratio and the cash flow per share for three years before the announcement of a write-down. The results indicate that the financial performance of the write-down firms tended to be neither in the top nor the bottom quintile relative to their control companies. They also find that the most significant determinant of write-down decision tend to be change in senior management, especially when the manager come from an outside firm. Furthermore, the authors examine the effect of this write-down announcement on the share performance of the firms. They find that firms report positive average cumulative abnormal returns, on average, 11 days before the announcement, but report negative returns during the announcement period. However, the return is typically positive 10 days after the announcement. Finally, they document that, the larger the write-down, the greater the announcement period negative abnormal return. The authors note that these findings support "the bigger the bath, the better" hypothesis.

[9] Alciatore et al. (1998) review extensive literature of accounting research on assets write-downs.

Elliot and Shaw (1988) examine the financial accounting performance and market returns of 240 firms that wrote down their assets during 1982-1985. Their results exhibit that firms taking an asset write-down had significantly lower return on assets and on equity in the year of write-down. The companies also experience declining asset growth, a significant drop in stock return and slowdown in earnings to market value performance. Similarly, Bartov, Lindahl and Ricks (1998) find that price declines precede write-off announcements, and, interestingly, the abnormal returns continue to decline for a two-year period. Zucca and Campbell (1992) study the write-down behaviour of 77 write-down firms, with 67 non-write-down firm as control samples. In general, the write-down firms tend to perform poorly, relative to the control group. Furthermore, they find that the majority of the write-downs are recorded when the earnings are below the expectations, and the remaining are recorded when earnings exceed expectations, suggesting that firms engage in both the big bath and smoothing strategies. Elliot and Hanna (1996) find that firms taking a write-off are more likely to have additional write-offs in future. Rees, Gill, and Gore (1996) provide evidence that firms taking write-off record significant negative abnormal accruals (excluding the write-off amount) in the year of write-down, but do not reverse in subsequent years.

Loh and Tan (2002) examine the firm-specific and macroeconomic factors that influence the write-off decision in Singapore, and report that the unemployment rate, GDP growth rate and occupancy rate of properties are important factors in a firm's write-off decision. For the firm's specific attributes, they find that return on assets and a change in chairman are key determinants in asset write-off decisions. Another study concerning the determinants of write-down decisions, by Francis, Hanna and Vincent (1996) demonstrates that manipulation and impairment factors drive write-down decisions. However, when they analyse write-down decisions by the type of assets, both factors play little or no role in determining inventory and

property, plant and equipment (PPE) write-down, but play a significant role in goodwill and restructuring charges write-downs. To sum up, most of the prior studies focus on the market reaction to the announcement of asset impairment, write-down firms' performance and determinants of asset write-off decisions, and only a few studies examine the influence of corporate governance attributes on impairment reporting.

2.3.4 Prior studies on impairment reversals

Studies on impairment reversals are limited, and focus mainly on mainland China and Taiwan. Duh et al. (2009) study the reversal of impairment loss reporting by Taiwanese firms. They report that the companies will reverse further when such reversal will avoid an earnings decline in the subsequent period. The study also provides evidence that corporate governance in reversal firms is weak compared to non-reversal firms. Chen, Wang and Zhao (2009) investigate whether the reversal of impairment losses by public listed companies in China is associated with economic factors or reporting incentives. They find that reporting incentives as a proxy for earnings management dominate managerial decisions. They also find that asset impairment reversals provide investors with value-relevant information, but that this association is significantly weaker than other earnings items. Lastly, they suggest that a high-quality accounting standard may not necessarily lead to high-quality accounting information, without the necessary supporting infrastructure for constraining managerial opportunistic behaviour. Ai (2007) examines the value relevance of assets impairment and the reversals in China, using 2001 to 2003 data. She finds that impairment and reversals are both positively associated with share price. When both impairment and reversals are regressed on stock returns, she finds only reversals associated with the returns, suggesting that the reversals are reported on a timely basis. The study also tests whether asset

impairment reversal explains future performance. She reports that the reversal is positively associated with future operating cash flow, but only over more than a one-year period.

A recent study by Zhang et al. (2010) also provides evidence on opportunistic impairment reversal reporting by firms listed on Chinese stock exchanges during the transition period following the announcement of the prohibition of reversal of impairment losses. They find that the announcement renstrains these firms from taking a "big bath". They also find that firms with substantial impairment and small positive earnings reverse significantly more impairment losses of long-lived assets during the transition period. They conclude that the accounting standard changes affect the firm's behaviour even before the new standard's effective date. In Malaysia, to the knowledge of the present author, there is no study on the reversal of impairment losses. Only a few studies examine the compliance of the Malaysian firms to FRS 136 (Laili et al., 2009; Carlin et al., 2008). This provides an interesting opportunity for research, because Malaysian accounting standards are based on the IFRS, and follow the common law system, whereas prior studies on impairment reversals focused on mainland China and Taiwan, which are code law countries. Moreover, China has its own accounting standards, which are different from the IFRS. Hence, this study may provide new insights into how firms react to the issuance of the impairment standard.

2.3.5 Comparison between impairment reversal and revaluation

FRS 116, *Property, Plant and Equipment*, describes the accounting treatments for fixed assets. The application of the standard is closely related to asset impairment. Generally, the standard allows companies to choose between the cost model and the revaluation model for the treatment of fixed assets. Under the cost model, fixed assets are carried at cost minus

accumulated depreciation and accumulated impairment loss. Under the revaluation model, the assets should be reported at the net revalued amount in the balance sheet. Under the revaluation model, the difference between market value and the book value, both upward and downward, should be recorded in the revaluation reserve account, and the balance recorded in the equity section. The upward revaluation will increase the equity account, while the downward revaluation will reduce the account.

Fixed assets treated under both models are subject to impairment tests. At each balance sheet date, companies need to assess whether there is any indication of impairment. If at least one of the indications exists, the related asset should be written down if its carrying amount is higher than its fair value. The difference is recorded as a loss in the income statement for cost model. In subsequent years, when the indications for asset impairment no longer exist, the company may reverse the loss, but should not exceed the value if the assets are not impaired originally. The reversal value will be recorded as the adjustment to the accumulated depreciation/amortisation and gain on reversal of impairment loss. Under the revaluation model, the treatment for impairment loss will be a little different from the cost model. The processes of the impairment test and the determination of impairment loss are similar under both the cost and revaluation models. However, under the revaluation model, the loss is recorded as a revaluation decrease, and, consequently, will reduce the revaluation reserve account.

The standard also allows the impairment for revalued assets to be reversed when the conditions for impairment no longer exists. It requires that the reversal of an impairment loss recognised previously should be treated as a revaluation increase. The assets are adjusted to reflect current values by increasing the value of an asset and crediting the equity account

(namely, the revaluation reserve), and are not recognised as income. Impairment is viewed as downward adjustments of fair value, and is reported accordingly as a reversal of previous revaluations.

When an asset has first been revalued upwards, then written down to reflect impairment, and later adjusted for the reversal of impairment, the required procedure is to report the reversal of impairment. As discussed before, impairment loss is accounted for as a reversal of upward revaluation. Then, the reversal of the impairment loss will be viewed as yet another upward revaluation, and accounted for as an addition to an equity account, and thus should not be reported through earnings. If impairment has eliminated the entire revaluation capital account, and an excess loss has been reported in earnings as impairment loss, then a reversal should later be reported in earnings (provided the earlier write-down had been so reported), with any balance taken directly to the revaluation reserve account.

There are a number of published studies examining asset revaluation behaviour. Aboody et al. (1999) investigate the revaluation of UK firms, and suggest that upward revaluation may be used to signal better future performance. They find that upward revaluations of fixed assets by UK firms are significantly positively related to future firm performance. Moreover, they also report that current year revaluations (revaluation balances) are significantly positively related to annual returns (prices), indicating that revaluations reflect asset value changes. They also find that large downward revaluations are significantly positively related to returns, and vice versa, for small downward revaluation. In Australia, Easton et al. (1993) investigate the relationship between the revaluation of tangible long-lived assets, and share prices and returns. They suggest that the inclusion of the revaluation reserve-to-book value of assets is more aligned with the market value of the firm. Moreover, they also report that the

balance of the revaluation reserve and the annual revaluation have significant explanatory power when the debt level is relatively high. Another study in Australia finds that a revaluation announcement is associated with upward share price movements, and suggests that the market appears to absorb the information quickly into the price (Sharpe & Walker, 1975). However, Emanuel (1989) finds no association between revaluation announcement and share price using data from New Zealand. In summary, studies in asset revaluation suggest that asset revaluation is associated with a firm's performance, and better reflects the firm's value.

2.3.6 Fair value measurement in FRS 136

The use of fair value measurement is also required in the application of FRS 136. In impairment testing, the reporting entity needs to determine the recoverable amount of an asset. The amount is the higher between the asset's fair value less the cost to sell and its value in use (para. 18 of FRS 136, 2006). Fair value less costs to sell is defined in the standard as:

> The amount obtainable from the sale of an asset or cash-generating unit in an arm's length transaction between knowledgeable, willing parties, less the costs of disposal.

The above definition is similar to the definition of fair value as described in Section 2.2. Hence, the use of the fair value measure is clearly stated in the impairment standard. In a case where the fair value cannot be determined, the standard requires the reporting entity to use the assets value in use as its recoverable amount. Value in use is the present value of future cash flows expected to be derived from the use of an asset. The cash flow projections should be based on reasonable and supportable assumptions that represent management's best

estimate of the firm's economic conditions. The most recent financial budgets approved by the management should also be considered in the projection of future cash flows.

Cairns (2006) states that fair value less costs to sell, in IAS 36, are, by definition, based on fair value, but are lower than fair value. Furthermore, value in the use of assets is based on estimates of future cash flows discounted at current market rates of interest. Therefore, they are indicative of the amount that rational, willing and knowledgeable parties would take into account when considering the exchange of the asset. Thus, these amounts approximate fair value. Cairns also claims that the use of fair value in IAS 36 forms an important part of impairment testing; that is, to determine the recoverable amount of non-current assets. He also claims that an entity can recover impaired assets by selling them, in particular by exchanging them with another knowledgeable, willing party in an arm's-length transaction. Therefore, fair value is one of the possible solutions for the recoverable amount of PPE and intangible assets.

2.4 The exploitation of non-cost-based measures of value: earnings management

As explained in Section 2.3.2, the valuation of an asset at fair value or value in use involves estimations and judgement by management. Estimations provide discretion to managers, and may be exploited to inflate, reduce or shift earnings to different periods. FRS 136, *Impairment of Assets*, is observed to give substantial flexibility to managers, and may provide an opportunity for managers to manage earnings (Titard and Pariser, 1996; Alciatore, 1998; Healy and Wahlen, 1999; Riedl, 2004). Prior studies provide evidence that managers use the impairment standard to manage earnings (Duh et al., 1999; Zhang et al., 2010). This section reviews the research issues concerning earnings management, which includes the definition

of earnings management, the motives for earnings management, the type of earnings management and the models used to detect earnings management.

2.4.1 Definitions

Two of the most popular earnings management definitions are:

(a) "A purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to, say, merely facilitating the neutral operation of the process)" (Schipper, 1989).

(b) "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy & Wahlen, 1999).

Beneish (2001) notes that, so far, no consensus has been achieved in terms of definition of earnings management, and that this would lead to a different discussion on interpretation regarding accounting research. He comments that the above definitions deal with external financial reporting, but the second definition also discusses timing, real investment and financial decisions as methods to manage earnings. Beneish views earnings management in two different perspectives: the opportunistic and the information perspective. The first perspective refers to an action to obtain private benefits, while the latter perspective suggests that managers use their discretion to provide information about future cash flows. Most prior

studies focus more on opportunistic earnings management, and there are very limited studies investigating information perspectives (Beneish, 2001).

2.4.2 Motives for earnings management

Many studies find that the motivations for earnings management are associated with debt covenants, compensation agreements, and the issuance of share and insider trading (Beneish, 2001). Dechow et al. (1996) report that earnings manipulation motives related to the issuance of shares at a higher price represent the highest frequency of cases reported among 92 companies subject to enforcement action by SEC, followed by the motive to report upwardly the value of earnings per share and the contractual incentive. Most accounting scholars classify earnings management motivations into several categories: (1) capital market incentives; (2) compensation contracts; and (3) debt covenants. All motives use accounting numbers as a tool to test whether the intended targets have been achieved or not. Some motives are concerned with the managers' personal interests, and some are more to protect the reputation and the survival of the business and its managers.

Capital market incentives are related to the intention of managers to influence the share price. The extensive use of accounting reports by investors and financial analysts may provide an incentive for managers to manage earnings. They may manipulate the reported earnings to influence the share price during the issuance of the shares to the public. This effort may benefit the company and the managers by reducing the cost of acquiring new capital. Seasoned equity offering is one type of capital market incentive. It provides an incentive for managers to manage earnings before the issuance of shares, to increase the price. Seasoned equity offering, sometimes called secondary equity offering, is the issuance of new shares to

the public by an already publicly listed company. These offers may relate to shares sold by existing investors (non-dilutive), new shares (dilutive) or both. Studies from Teoh et al. (1998b) and Rangan (1998) provide evidence that this incentive is associated with managers' intent to manage earnings prior to seasoned equity offerings. Teoh et al. (1998b) report that issuers who adjust their discretionary accruals, to manage earnings before the offerings, tend to possess a lower net income after the offer. Rangan (1998) reports a similar result, and finds that earnings management concerning the offer period reflects the changes in net income and stock return. He concludes that investors temporarily overvalue the shares, and are disappointed by the subsequent decline in net income.

Initial public offering is another type of capital market incentive. It refers to the offering of new shares when a company is going public for the first time. It would also provide an incentive for managers to manage earnings, to an even greater extent than seasoned equity offering. Dechow and Shrand (2004) state that managing earnings is more beneficial during initial public offerings, due to the greater probability of misleading investors. Some studies document evidence of this motivation (Teoh et al., 1998a; Teoh, Wong & Rao, 1998; DuCharme, Malatesta & Sefcik, 2001). Most of the studies find that companies do manage earnings prior to initial offerings. However, Aharony, Lin and Loeb (1993) do not find strong evidence for this motivation.

Incentives to manage earnings in mergers are likely to occur, as both parties involved – acquirer and target – tend to do so to increase share price. Christie and Zimmerman (1994) provide evidence that acquirees tend to report income-increasing depreciation, inventory and investment tax credit. Another study by Easterwood (1998) finds evidence for the use of discretionary accruals by takeover targets, to report high earnings, as compared to a control

group during the quarter before and after the merger. Similarly, Erickson and Wang (1999) find that the takeover targets have incentives to inflate earnings. In contrast, managers are found to adopt income-decreasing earnings management that will reduce the share price in a management buyout activity (Perry & Williams, 1994; Wu, 1997). Income-increasing earnings management was also found in insider equity transaction (Beneish & Vargus, 2002).

Prior studies detailing incentives to meet earnings forecasts or targets are vast and varied. Studies in this area aim to investigate whether firms manage accruals to meet or barely beat the targets to influence the share. Early studies by Burgstahler and Dichev (1997) examine this incentive using a distribution approach, and find that the number of firms that report slightly negative earnings are lower than the frequencies of companies which reported slightly positive earnings. They claim that both findings are unusual. Degeorge et al. (1999) find similar results at three thresholds: reporting positive earnings, maintaining current performance and meeting analyst forecasts. They also find evidence that the future performances of firms merely meeting thresholds appear worse than those of control groups. Peasnell, Pope and Young (2000) investigate whether the association between board composition and earnings management, measured using motivation to meet earnings targets, differs between the pre- and post-Cadbury periods. They find that, in the post-Cadbury period, the income-increasing accruals management to meet earnings target is reduced when the proportion of non-executive directors is high. Using a sample of 121 reversals of restructuring charges recorded between 1990 and 1999, Moehrle (2002) finds that some firms record the reversals to beat analysts' forecasts, and to avoid reporting negative earnings and earnings declines. Research in this area is also conducted across the globe, using the distribution. Similar results were found in Thailand and Singapore (Charoenwong & Jiraporn, 2009), China (Yu, Du & Sun, 2006) and Malaysia (Mohd. Saleh, Mohd, Iskandar & Rahmat,

2005a). These studies also consider corporate governance in their empirical investigations, and suggest a significant role for the corporate governance in mitigating the earnings management behaviour. For example, Mohd. Saleh et al. (2005a) investigate the effects of the size and code of corporate governance on the incidence of managing earnings, to avoid earnings decreases and losses by Malaysian public companies. They report that the significant incidence of earnings management to avoid losses by the firms is reduced following the introduction of the Malaysian code of corporate governance.

In business operations, companies are subject to certain restrictions and regulatory requirements from the government financiers and creditors. In addition, various performance-based measurements for management compensation have been adopted by top management, to align the interests of executives and shareholders. Debt covenants, share-based payment, tax incentives and government regulatory requirements are a few of the examples of contractual incentives. Lending arrangements are signed to ensure that companies maintain a certain level of earnings performance. Earnings-based bonus awards are provided to executives as a motivation to achieve a certain earnings level. Watts and Zimmerman (1978) comment that this contract might provide incentives for earnings management, as stakeholders may be unable to detect the opportunistic behaviour through accruals.

Research findings in earnings management studies using debt covenant incentives provide some evidence of the existence of earnings manipulation. DeAngelo, DeAngelo and Skinner (1994), and Healy and Pelapu (1990), examine the behaviour of firms to manage accruals and accounting choice when the covenants are close to being violated. Holthausen (1981) investigates the depreciation method changes when firms are close to their dividend covenant. These studies provide weak evidence regarding the accruals manipulation of the

incentives. DeAngelo et al. report that troubled companies use income-decreasing accruals management, rather than attempting to inflate earnings.

In an extreme case, Sweeney (1994), and DeFond and Jiambalvo (1994), investigate the behaviour of the violators of covenants. Despite the mixed results of the studies, they find that the violators do, to some extent, engage in opportunistic accruals management. DeFond and Jiambalvo report that violators accelerate earnings one year before the violation, and suggest that firms manage earnings when they are close to their contract covenant violation. Similarly, Sweeney finds income-increasing accounting changes as the companies approach the debt covenant violation point. This study suggests that the frequency of earnings management for avoiding technical faults on loan covenants is low. Jaggi and Lee (2002) compare the earnings management between troubled firms that were able to obtain waivers and firms that were unsuccessful in this regard. They find that successful firms use income-increasing discretionary accruals, but they observe the use of income-decreasing discretionary accruals by firms that failed to obtain debt waivers.

Nowadays, most businesses provide earnings-based performance incentives to top executives, as motivation to achieve a certain earnings level. The introduction of the rewards will motivate managers to exercise their duties in the interests of other stakeholders. However, a number of recent studies provide evidence that managers use discretionary accruals to adjust the earnings to the level of earnings targets set by the board of directors. An early study by Healy (1985) uses 1,527 firm-year observations from 1930-1980, and finds evidence to support the claim that managers manage earnings to maximise earnings-based awards. This study illustrates that, when earnings reported are between the range as set in the earnings-based plan, managers will increase profits to maximise the bonus. When unmanaged earnings

are below the range or above the range, managers will reduce the earnings to create a reserve for future periods. Consistent with this result, Guidry, Leon and Rock (1999) use business unit financial data, and report that managers are likely to defer income when targets are not achieved.

Gaver, Gaver and Austin (1995) examine the relationship between discretionary accruals and bonus plan bounds for a sample of 102 firms, from 1980-1990. Consistent with Healy's (1985) findings, they find that managers use income-decreasing accruals reporting when reported earnings were above the upper level. However, when earnings before discretionary accruals fall below the lower bound, income-increasing discretionary accruals are observed. They conclude that the results are more consistent with the income smoothing hypothesis. The earlier findings provide evidence of the existence of accruals manipulation by managers in fulfilling their desire to maximise their bonus rewards. However, a number of recent studies on earnings-based rewards find that the incentives have decreased. Dechow and Shrand (2004) comment that the incentives have changed, along with the motive to maximise share-based compensation. This argument is supported by evidence reported by Cheng and Warfield (2005).

2.4.3 Broad types of earnings management

Accounting earnings contain two main elements: cash and accruals. The modification of any elements will affect the earnings numbers. The modification of accruals is viewed as unobservable earnings management, as it does not involve changes in real accounting transactions. Many studies have documented that this type of earnings management is pervasive and varied, compared to real manipulation through business transactions. Accruals

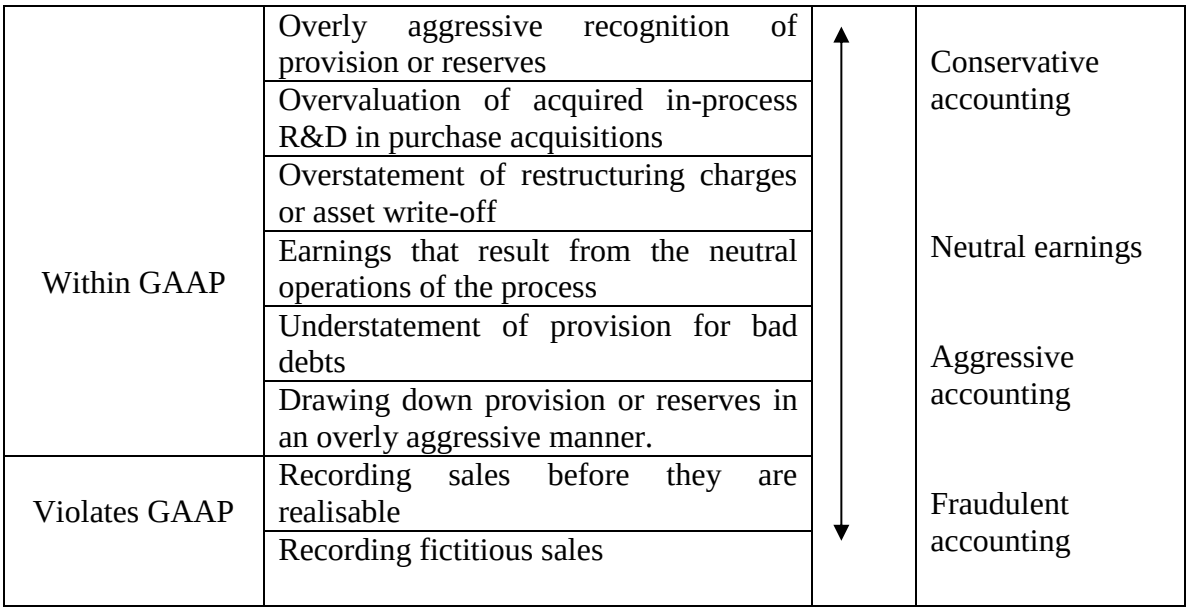
provide an opportunity for managers to manage earnings because they require the use of judgments and estimations. The greater the flexibility in using the judgments, the greater the scope of firms to manage earnings. The following events are some examples of situations in which managers can use judgments using accruals:

(a) *Accounts receivables:* The determination of provision for bad debts requires managers to estimate the percentage of uncollectable receivables.
(b) *Inventory:* Some of the costs related to the determination of the inventory value are capitalised, and some costs are expensed. The determination of inventory write-down requires the use of estimation.
(c) *Property, plant and equipment:* How to determine the acquisition cost provides room for managers to use judgment in the classification of acquisition cost, either as assets or an expense item. The determination of an impairment loss, and its possible reversal, also requires the use of extensive discretion.
(d) *Pension and post-retirement benefits:* This item provides a lot of discretion, as managers need to forecast the expected return of planned assets and the use of actuarial assumptions.

Accruals manipulation involves the timing of the recognition of revenue and expense. An overstatement of profits in one period will reduce the future profits, with the same effect for expense items. For example, an overstatement of an impairment loss for a current period will be reversed in the future period, to increase earnings. As the determination of impairment recognition requires managers to perform business environment analysis (future cash flow estimation, an assessment of market conditions), managers may time the recognition of the loss in the current period. The use of accruals management is not necessarily a violation of

GAAP, as long as it does not involve fraudulent accounting. Dechow and Skinner (2000) provide an overview of how different types of accounting choices can be classified as earnings management and fraudulent accounting. Figure 2.1, below, illustrates this view:

Figure 2.1: The distinction between earnings management and fraudulent accounting



Source: Dechow, P. M. and Skinner, D. J. (2000)

The manipulation of real transactions will affect the cash flow of the enterprise. As the second element of earnings is cash, earning management through real transaction may affect the amount of earnings reported. Firms may undertake real economic transactions to influence the earnings in cash; for example, cutting research and development expenditure, boosting sales by offering products at a discount and disposing of fixed assets with high market values, as compared to book value. This type of earnings management is not a violation of GAAP, as long as the company properly accounts the transaction. Nonetheless, the "intent" in the decision taken (for example, to dispose of an asset), might contents a motive to manage earnings.

Several studies provide evidence of the use of real transactions to manage earnings. Bartov (1993) finds that US firms manage earnings through the timing of fixed assets and long-term

investment disposals, to smooth the earnings changes. To boost profits, firms dispose of assets with unrealised gain, and defer the disposal of assets with unrealised loss; and vice versa when the profits are too high. Black, Sellers and Manly (1998) extend the study by examining the behaviour of UK firms and US firms in the treatment of fixed assets. The UK accounting standards allow firms to revalue fixed assets and record as revaluation reserves in the equity section of the balance sheet. In contrast, asset revaluation is prohibited in the US, and the asset should be reported at book value, or its impaired value. They find that the income smoothing through the use of assets sales is less prevalent in countries allowing asset revaluation. The small difference between the selling price and the book value of fixed assets for the revaluer provides little opportunities to inflate earnings. In a recent study, Zang (2012) provides evidence that managers use real activities manipulation and accrual-based earnings management as substitutes, based on their relative costs.

2.4.4 Accounting methods of managing earnings

There are various methods used in earnings management. Stolowy and Breton (2004) give one name to all techniques of earnings management: accounts manipulation. This includes earnings management, income smoothing, "big bath" accounting, creative accounting and window-dressing. They define accounts manipulation as "the use of management discretion to make accounting choices or to design transactions so as to affect the possibilities of wealth transfer between the company and society (political cost), funds providers (cost of capital) or managers (compensation plans)". Beneish (2001) classifies earnings management into two groups: income-increasing earnings management and income-reducing earnings management. The first method is used to increase earnings when the income is lower than a desired target. Prior studies find that the incentives for this method are related to debt covenants,

compensation agreements, equity offerings and insider trading (Beneish, 2001). The second method is used mostly to increase the likelihood of a negotiated or regulatory outcome; for example, to reduce the likelihood of wealth transfer (Watts & Zimmerman, 1978), and to obtain import relief (Jones, 1991). Arthur Levitt, the former chairman of the SEC, describes some other general methods for earnings management: big bath, creative acquisition accounting, "cookie jar" reserves, abuse of the materiality concept and improper revenue recognition (Levitt, 1998).

The literature detailing income smoothing has a long history, starting from the early 1890s. A wealth of research concerning income smoothing demonstrates that the earnings management using income-smoothing is pervasive. Some definitions of income smoothing include the following:

(1) Trueman and Titman (1988):

"taking actions to dampen of fluctuations in their firm's publicly reported net income."

(2) McNichols and Wilson (1988):

"Income smoothing hypothesis predicts that firms choose accruals to minimise the variance of reported earnings. In particular when income would otherwise be unusually high, they will choose income-reducing accruals, and when earnings are unusually low, they will choose income-increasing accruals."

(3) Black, Sellers and Manly (1998):

> "Income smoothing is a specific form of earnings management which posits that managers manipulate earnings to reduce volatility. Inherent to the income smoothing hypothesis is the assumption that earnings vary around some normal level, and that managers attempt to consistently maintain reported earnings as close to this level as possible."

Clearly, considering the three definitions, income smoothing refers to the behaviour of managers which reduces the variability and fluctuations of annual income to a certain level considered normal by the firm. One of the objectives is due to the perception of investors that firms have a normal level of earnings (Ronen & Sadan, 1981). Reported earnings are used by management for budgeting purposes. If the variations of reported earnings are too high, it would be difficult to forecast the percentage of the increment of all financial items. The objective of income smoothing for external factors lies in the theory of capital assets value. Based on this theory, the value of an asset is represented by the discounting of future cash flow expected to be generated from the use of the assets, and the discount rate is related to the uncertainty of the expectation. This uncertainty depends on the possible outcomes for each of the future periods. The linkage between the variability of the future income and the value of expected future cash flows is one of the main focuses of attention in the theory of asset value. From the investor's point of view, the variability of the earnings stream will influence the amount of dividend paid, as directors consider the factors for a dividend formulation strategy. In addition, the stable earnings stream reflects the overall riskiness of the business, and has a direct effect on the investor's capitalisation rate, and thus influences the share price (Beidleman, 1973).

There is no strong evidence concerning whether the smoothed income stream is either advantageous or disadvantageous to firms or stakeholders (Imhoff, 1977). Ronen and Sadan (1980) posit that the smoothing of income may not be as evil as one might think, and suggest that the technique can enhance the ability of investors to predict future income figures. Furthermore, Wang and Williams (1994) document evidence that income smoothing enhances the informational value of earnings, and suggest that the process of income smoothing incorporates managers' private knowledge regarding the firm's future performance. On the other hand, some studies view this behaviour as an attempt to mislead the shareholders and investors (Ronen & Sadan, 1981; Christensen et al., 1999).

Despite the large volume of studies in the income smoothing literature, the results are mixed and inconclusive. Several studies provide evidence that income smoothing is widely practised (Craig & Walsh, 1989), and strongly support the smoothing hypothesis (Ronen & Sadan, 1975; Ma, 1988). There is also evidence that income smoothing is not pervasive, and is fairly practised (Albrecht & Richardson, 1990; Ashari, Koh, Tan & Wong, 1994). Few studies focus on the factors associated with income smoothing. For example, Kamin and Ronen (1978), and Amihud, Kamin and Ronen (1983), report that, compared to owner-controlled firms, manager-controlled firms tend to smooth income significantly more. Company size and returns are also associated with smoothing behaviour (Moses, 1987; Craig & Walsh, 1989).

The big bath is another concept in earnings management. Under this method, if a company expects to have a series of hits to earnings in future years, it is better to recognise all the bad news in one year, leaving future years unencumbered by continuing losses. One way to practise the big bath approach is through the recognition of large asset impairment.

2.4.5 Models to detect earnings management

The three main approaches used to detect earnings management are studies of aggregate accruals, studies of a specific accruals and studies of discontinuities in the distribution of income (Beneish, 2001). A number of models to investigate the existence of earnings manipulation have been developed, including those of Healy (1985), DeAngelo (1986), Jones and Modified Jones (1991), and DeFond and Park (2001). The second approach focuses on a single account such as provision for bad debt, deferred tax and impairment of assets. The last approach examines the distribution of earnings.

Under the first approach, the starting point to detect earnings management is the total accruals reported by firms. Generally, the models listed above will decompose the total accruals into discretionary and nondiscretionary accruals components, and the discretionary component represents a measure for earnings management. Healy (1985) introduces the first model used to determine the discretionary accruals. This empirical approach is the simplest model, as it defines total discretionary accruals as equal to total accruals. Healy uses a firm's operating cash flows as a proxy for nondiscretionary accruals. Since the net reported earnings are comprised of operating cash flow and non-cash items, the totals accruals are the difference between the net operating income and the operating cash flows. The Healy model simply assumes that expected nondiscretionary accruals for the period are zero, and hence that any value for totals accruals is attributable to managerial discretion. DeAngelo (1986) points out that one advantage of using this model is that it can potentially reveal subtle income-reducing techniques, because such methods are less subject to detection by outsiders. However, this assumption has several limitations: the total accruals comprise both discretionary and nondiscretionary components (Healy, 1985), and it is highly restrictive,

considering that the level of working capital accruals will fluctuate in response to economic conditions and firm performance (Kaplan, 1985).

The most widely used models for separating nondiscretionary and discretionary accruals in studies of aggregate accruals are the Jones's original (1991) and modified models. These models relax the assumption that nondiscretionary accruals are constant. Following Kaplan's (1985) suggestion, Jones controls for the effects of economic circumstances on the nondiscretionary accruals. The tests of this model are implemented with sufficient time-series data to estimate firm-specific coefficients, which are then used to estimate the discretionary accruals for a particular year. The Jones models regress total accruals on the level of property, plant and equipment (PPE), and changes in sales. The gross value of property, plant and equipment and revenue change are used to control for changes in nondiscretionary accruals caused by changes in the fundamentals. In particular, revenue is included as a control, because it is an objective measure of the firm's operation before managers' manipulation. The gross value of property, plant and equipment is used to control for the portion of total accruals related to nondiscretionary depreciation expense. The regression provides coefficients, which are then used to estimate discretionary accruals. The discretionary accruals are thus the residual components of the total accruals. The model is expressed as follows:

$$TA_{i,t} / A_{i,t-1} = \beta_{0,i} (1/A_{i,t-1}) + \beta_{1,i} (\Delta REV_{i,t}/A_{i,t-1}) + \beta_{2,i} (PPE_{i,t}/A_{i,t-1}) + \varepsilon_{i,t} \qquad (2\text{-}1)$$

where:

$\Delta REV_{i,t}$ is the change in revenues from year $t\text{-}1$ to year t, for firm i;

$PPE_{i,t}$ is gross property, plant and equipment in year *t*, for firm *i*;

$\varepsilon_{i,t}$ is the error term in year *t*, for firm *i*;

and all other variables are as previously defined.

The estimated coefficients from 2-1 are then combined with data from the test period, to generate the discretionary accruals:

$$DAC_{i,t} = TA_{i,t}/A_{i,t-1} - [\beta_{0,i}\,(1/A_{i,t-1}) + \beta_{1,i}(\Delta REV_{i,t}/A_{i,t-1}) + \beta_{2,i}\,(PPE_{i,t}/A_{i,t-1})] \qquad (2\text{-}2)$$

Ever since the model was introduced by Jones (1991), it has been expanded on numerous occasions within earnings management studies. However, as the credit sales could also be a source of earnings management through inflated receivables, Dechow, Sloan and Sweeney (1995) suggest that the first parameter should be corrected with the change in receivables. They modified the original Jones model by adjusting the changes in the revenues, by subtracting the corresponding change in receivables. Dechow et al. document evidence that the modified Jones model is more powerful than the initial model in detecting earnings manipulation, as presented below:

$$DAC_{i,t} = TA_{i,t}/A_{i,t-1} - [\beta_{0,i}\,(1/A_{i,t-1}) + \beta_{1,i}(\Delta REV_{i,t} - \Delta REC_{i,t})\,/A_{i,t-1} + \beta_{2,i}\,(PPE_{i,t}/A_{i,t-1})] \qquad (2\text{-}3)$$

Despite the widespread use of this approach in earnings management studies, the validity and reliability of this method has been criticised. After assessing all models mentioned above, Dechow et al. (1995) posit that these models generate tests of low power for the earnings management of economically plausible magnitudes, and are poorly specified when they are applied to samples of firm-years experiencing extreme financial performance. Dechow et al.

highlight the importance to control for expected earnings growth when measuring discretionary accruals. Furthermore, McNichols (2000) notes that the aggregate accruals models which do not consider long-term growth are potentially misspecified, and result in misleading inferences regarding earnings management practice. She also raises the question of how accruals behave in the absence of earnings management, as it is extremely difficult to be confident that estimates of discretionary accruals capture discretion from management, due to the little theory or evidence available for how these accruals behave with or without earnings management intentions.

Taking a different approach, DeFond and Park (2001) use abnormal working capital accruals as a proxy for abnormal accruals. They model abnormal working capital accruals as the difference between the current year's realised working capital accruals and the expected level of working capital accruals, where the historical relation of working capital to sales captures expected working capital. DeFond and Park view the difference as the portion of working capital accruals that is unlikely to be sustained, and is expected to be reversed against future earnings. The empirical model is:

$$AWCA_t = WC_t - [(WC_{t-1}/S_{t-1}) * S_t] \qquad (2\text{-}4)$$

where:

$AWCA_t$ = abnormal working capital accruals in year *t*;

WC_t = non-cash working capital in year *t* that is defined as (current assets - cash and cash equivalent) – (current liabilities – short-term debt);

WC_{t-1} = working capital in previous year;

S_t = sales in year *t*;

S_{t-1} = sales in previous year.

AWCA in 2-4 captures the deviation of the current year's working capital accruals from the normal level of working capital accruals required to support current sales. Thus, AWCA is interpreted as opportunistic earnings management.

Dechow et al. (2012) propose a new approach to detect accrual-based earnings management. Their motivation stems from the limitation of the existing techniques in measuring earnings management. These techniques lack power in isolating discretionary accruals from total accruals. Under the new approach, Dechow et al. (2012) propose the inclusion of reversals of prior discretionary accruals in the earnings management models. They claim that the distortion of accruals in one period must reverse in another period. If the researcher correctly identifies the periods in which earnings management originated and reverses, incorporating the reversals increases the amount of variation in the discretionary accruals. Hence, the ability of existing accruals-based tests to detect earnings management can be significantly approved. They conducted several simulation tests by incorporating reversals in earnings management models, and found that the test power increases by around 40%. Furthermore, the tests are robust in mitigating misspecification across a broad set of economic characteristics. They also suggest that future research could use this technique to investigate earnings management in individual accruals accounts, such as property, plant and equipment, and goodwill impairment.

Earnings smoothness is another method used to manage earnings. This method aims to ensure that reported income increases steadily on every reporting date. The Statement of Financial Accounting Concept (SFAC) No. 1 states: "Information about enterprise earnings based on

accrual accounting generally provides a better indication of an enterprise's present and continuing ability to generate favourable cash flows than information limited to the financial effects of cash receipts and payments". According to Dechow et al. (2010), the standard-setter's goal is a representation of fundamental performance that improves the cash flow's predictability. They further posit that, based on this system, the earnings smooth random fluctuations in the timing of cash payments and receipts, making earnings more informative regarding performance than cash flows. Thus, smoothness is an outcome, and not the ultimate goal of the accrual system. However, the assumption that accruals-based earnings measurement will better reflect a firm's performance is merely an assumption, and accruals can hide and delay the measurement of changes in fundamental performance, which would be useful when a decision is revealed (Dechow et al., 2010). They conclude that, even in the absence of accounting choices, smoothness is not a *de facto* indication of greater usefulness in decision-making.

Most studies in earnings management measure smoothness by examining the variant of the variability of reported earnings relative to total assets, cash flows from operations, and the correlation between changes in accruals and changes in cash flows from operations. The first measure examines the volatility of earnings deflated by total assets. This method has been used by some researchers (e.g. Lang, Ready & Wilson, 2006; Barth et al., 2008). Lang et al. (2006) argue that, when all else is equal, if firms are smoothing earnings, the variability of earnings should be lower. However, the volatility of earnings may also be affected by firm-specific characteristics such as the volatility of the cash flow stream. A better measure of income smoothing to capture the effect of cash flow volatility is achieved by examining the mean ratio of the variability of the change in net income, ΔNI, to the variability of the change in cash flows from operations, ΔCFO. Normally, firms with more volatile cash flows

typically have more volatile net income. If firms use accruals to manage earnings, the variability of the change in net income should be lower than that of cash flows from operations. A more direct approach to measure smoothness is to consider the correlation between accruals and cash flows ($Corr(\Delta ACC, \Delta CFO)$). Authors such as Land and Lang (2002), and Lang et al. (2006), suggest that, when all else is equal, a more negative correlation is an indication of earnings smoothing, since managers will increase accruals as a response to poor cash flow performance. In short, the negative and higher value of the correlation between accruals and cash flows from operations indicates that firms manage earnings using accruals.

Although the aggregate accruals model has been used extensively in detecting earnings management behaviour, the interpretation of the findings is still controversial, due to the difficulty in separating discretionary and nondiscretionary accruals. Due to this problem, McNichols (2000) suggests that further progress in the literature is required to depart from the high reliance on the aggregate accruals approach. An alternative method used to detect earnings management involves focusing on specific accruals. Beneish (2001) suggests that, by exploiting information concerning specific accruals, a potentially more powerful method to detect earnings management can be developed. This suggestion is based on his study of the ability of the modified Jones model to detect earnings management by firms identified as generally accepted accounting principle (GAAP) violators. He finds that the modified Jones model does not perform well in detecting GAAP violators. In addition, standard-setters are also very likely to be interested in evidence that specific accruals are being managed for future improvement (Healy & Wahlen, 1999). Such studies are also crucial to developing more powerful accruals model (Healy & Wahlen, 1999).

McNichols (2000) lists three advantages of using specific accruals in earning management research. Firstly, the researcher can develop intuition regarding factors influencing the behaviour of the accrual and exploiting the knowledge of GAAP. Secondly, this method can be applied in businesses whose business practices cause the accruals in question to be subject to discretion and judgement. Lastly, the researcher can investigate the relationship between the specific accruals and explanatory factors directly. Nevertheless, this method is also subject to some disadvantages, including the requirement for more institutional knowledge, the reliability of specific accruals to reflect the exercise of manipulation, the small sample size and the limited generalisability of the findings (McNichols, 2000; Dechow et al., 2010).

There is a small volume of published studies on earnings management using specific accruals, suggesting a platform for interesting future research agenda (Healy & Wahlen, 1999). For example, McNichols and Wilson (1988) focus on the provision for bad debts as a proxy for discretionary accruals. By modelling the provision for bad debts using a definition under GAAP, they attempt to isolate a discretionary accruals proxy that is substantially free of nondiscretionary components. They find that the discretionary component of the provision for bad debts is income-decreasing for the firm whose earnings are unusually high or low. This finding is inconsistent with the income smoothing hypothesis. A study by Teoh et al. (1998a) examines provision for bad debt and depreciation estimates prior to initial public offering. They conclude that, compared to control group-non-IPO firms, IPO firms tend to report income-increasing depreciation policies and bad debts allowances in the IPO year, and during several subsequent years.

Some researchers choose a specific industry to study earnings management behaviour. Beaver, Eger, Ryan and Wolfson (1989) examine the loan loss reserves of banks. Studies of

insurance claim loss reserves also indicate that there are earnings management practices among insurance companies (Petroni, 1992; Penalva, 1998). In a different context, Visvanathan (1998) investigates the relationship between changes in valuation allowances for deferred tax and current earnings. The result does not indicate that the practices are subject to widespread earnings management. Instead of using deferred tax components, Dhaliwal et al. (2004) examine total tax expense. They provide robust evidence that firms lower their projected effective tax rates when non-tax sources of earnings management are insufficient to achieve targets.

Burgstahler and Dichev (1997), and Hayn (1995), introduce earnings distribution method in studying the earnings management behaviour of firms. The main difference of this study is that the researchers do not have to estimate abnormal accruals. This method examines the distribution of reported income concerning thresholds, such as reporting small positive income or avoiding losses. Studies using this technique propose that firms have incentives to avoid reporting losses or earnings declines. The higher frequency of reporting slightly positive incomes and abnormal discontinuities at certain thresholds indicates that firms manage earnings.

A number of studies use this method to detect earnings management. Burgstahler and Dichev (1997) report that the frequencies of small earnings increases and small positive earnings are abnormally high compared to the volume of small earnings decreases and small losses. They conclude that this phenomenon is pervasive, and find that 8-12% of firms with small pre-managed income decreases inflate earnings to meet their targets, while 30-44% of firms with small pre-managed losses manipulate earnings to create a small amount of positive incomes. Further tests indicate that cash flows from operations and changes in working capital are

chosen by managers, to manipulate earnings. These reporting patterns are also observed in studies using quarterly reported earnings (Burgstahler, 1997). Similarly, Degeorge et al. (1999) provide evidence that earnings management occurs at three thresholds: reporting positive profits, maintaining the current level of earnings and meeting analysts' projections.

Other studies, however, describe some of the weaknesses of the distribution approach. McNichols (2000) claims that this method does not differentiate between normal and abnormal accruals, which is required to measure the extent of earnings management. She posits that the distribution approach provides results that discriminate which group of firms are likely to manage earnings, rather than developing a better approach to estimate the level of earnings manipulation. Furthermore, Durtschi and Easton (2005) provide evidence that the shape of the earnings distribution produced by studies using this method is influenced by several factors: deflation, sample selection criteria, and differences between the characteristics of observations to the left of zero and observations to the right of zero. Healy and Wahlen (1999) also claim that this approach does not provide direct implications for standard-setters.

2.5 Corporate governance and earnings management

Earnings management has been viewed as the opportunistic behaviour of managers, for their own benefits (Holthausen & Leftwich, 1983), and as misleading (Healy & Wahlen, 1999). Practitioners and regulators often view earnings management as pervasive and problematic (Dechow & Skinner, 2000). Thus, initiatives should be formulated to enhance the oversight of the financial reporting process by those entrusted as the shareholders' guardians (Levitt, 1998). Following these concerns, corporate governance is viewed as an important mechanism

used to safeguard the interests of shareholders. According to agency theory, the opportunistic behaviour of agents can be controlled through the adoption of proper monitoring mechanisms (Jensen & Meckling, 1976). The appropriateness of the monitoring mechanism chosen is claimed to be crucial in terms of market competition amongst organisations (Fama & Jensen, 1983).

Following the worldwide financial crisis and corporate collapse, corporate oversights of public companies in the world have changed dramatically. Weak and malfunctioning corporate governance mechanisms are claimed to be the key factors responsible for causing and accelerating the deteriorating situations of the crisis (Suto, 2003; Sam, 2007). Various internal and external monitoring mechanisms have been suggested, and efforts are undertaken to improve these mechanisms. These mechanisms are claimed to be able to align the interests of agents more closely with those of the principals (Sam, 2007).

After the 1997 economic turmoil and the major corporate collapse, the Malaysian government has conducted extensive reforms in legal, regulatory and reporting requirements relating to corporate oversights, shareholders protection and other monitoring mechanisms (Suto, 2003; Liew, 2007). Regulatory oversights of corporate governance are introduced to promote good governance and boost the confidence of investors in their capital markets, strengthening investors' protection (Haniffa & Hudaib, 2006). Among others, the reforms include the amendments to the Bursa Malaysia's listing requirements and the setting up of the High Level Finance Committee of Corporate Governance to establish a framework for corporate governance. The Committee released the Malaysian Code on Corporate Governance (the Code) (Finance Committee on Corporate Governance [FCCG], 2001), in March 2000, which was fully implemented in 2001. The Code introduces the principles and

best practices of corporate governance, to inculcate good corporate governance among Malaysian public listed companies (PLCs). The Code was revised by the Securities Commission in October 2007 and 2011, to further improve corporate governance standards and strengthen investor confidence. The implementation of the reforms, immediately before and after the crisis, has contributed to the resilience of the Malaysian corporate sector (Cheah, 2010).

2.5.1 The role of corporate governance

Larcker, Richardson and Tuna (2007) define corporate governance as "the set of mechanisms that influence the decisions made by managers with the interest of shareholders". Shleifer and Vishny (1997) give a straightforward definition: "Corporate governance deals with the ways in which suppliers for finance to corporations assure themselves of getting a return on their investment". Chisari and Ferro (2009) define corporate governance as "The available system of institutions or mechanisms that induce incentives in listed business firms, so as to distribute benefits between stakeholders, restricting discretion on such distribution". One recent definition by Brickley and Zimmerman (2010) view the term broadly, as "the systems of laws, regulations, institutions, markets, contracts, and corporate policies and procedures (such as the internal control system, policy manuals, and budgets) that direct and influence the actions of the top-level decision makers in the corporation (shareholders, boards, and executives)". Despite the various definitions given by authors, there is still no agreement on the definition of corporate governance. Common definitions focus on the separation of ownership from control, while others give a broader view which includes boards, financial statements, analysts, banks, government, media and so on. Agreement on the definition of

corporate governance could have significant applications for both the direction and interpretation of the research (Brickley & Zimmerman, 2010).

There is a large volume of published studies describing the role of corporate governance in the corporate world. The main role of this mechanism has been explained in agency theory. Based on this theory, issues associated with the separation between ownership and control will lead managers (agents) to act in an opportunistic manner, by increasing their personal wealth at the expense of the owners (principals) of an organisation (Jensen & Meckling, 1976). Managers, it is claimed, do not always act in the best interests of shareholders (Fama & Jensen, 1983). Managers also have substantial residual control rights (i.e. the rights to make a decision in circumstances not fully foreseen within the contract) (Grossman & Hart, 1986; Hart & Moore, 1990, cited in Shleifer & Vishny, 1997). Considering the separation of ownership from management, Jensen and Meckling (1976) posit that the opportunistic behaviour of managers can be controlled by monitoring mechanisms. Healy and Palepu (2001) suggest that, to reduce the agency problem, the board of directors can be a crucial mechanism used to monitor and discipline management on behalf of external owners. The shareholders (principals) will appoint a board of directors and external directors (Fama & Jensen, 1983), to reduce the risk of avoiding responsibility by agents. The board of directors is, then, responsible for monitoring the duties of managers.

Similarly, Healy and Palepu (2001) propose that, to reduce the agency problem, the board of directors can be an important mechanism used to monitor the managers' actions. Diverse ownership in complex organisations requires the need for the delegation of decision control (ratification and monitoring) and decision management (initiation and implementation) to managers (Rediker & Seth, 1995). This framework proposes different roles for inside

directors (i.e. top management) and outside members of the board. The primary role of inside directors is expected to be decision management, and that of outside directors to be decision control. To perform decision control tasks, outside directors are given the rights to ratify and monitor major corporate-level initiatives, as well as hiring and setting the compensation level of top management. In order for the outside directors to be effective in checking managerial decisions, they must have incentives to avoid colluding with management (Rediker & Seth, 1995).

External auditing is also an important corporate governance mechanism. An external auditor is appointed to ensure that the financial statements produced by the management of the firm are in compliance with approved accounting standards, rules and regulations, and are fairly presented the economic condition of the company (Peel & Clatworthy, 2001). Niemi (2005) claims that the demand for external auditing emerges from information asymmetries occurring between the client management and the stakeholders of the client organisation. It is also claimed that an organisation demands a positive quantity of auditing, because external auditors have some advantages (relative to the internal system) in certain aspects of control (Simunic, 1980).

Maijoor (2000) posits that internal control mechanisms such as internal audits and the reporting of internal controls are now becoming part of the corporate governance systems to reduce the agency problem. Effective and independent internal auditing conducted on both a periodic and a non-periodic basis will be able to identify misconduct within an organisation. The main role of internal auditing includes the monitoring of financial statement integrity, assessing the internal control systems and identifying any misconduct concerning sensitive areas such as cash flow management, asset management, bribery, book-keeping accuracy and

completeness. It is claimed that the main work of internal auditors is to provide sufficient assurance that established policies, procedures and statutory requirements are followed, which is subsequently followed by a systematic review of the internal control system, the accounting and management information system and the risk management system (Kah Yun & Haron, 2004). Internal auditors understand and appreciate the organisation's business process, acting as management consultants to reduce risks and help to run an organisation more efficiently and effectively, to increase the shareholders' value (Fadzil, Haron & Jantan, 2005).

To sum up, various corporate governance mechanisms, as discussed above, are among the important parts of a corporation's monitoring mechanism. It embraces both the internal and the external operations of a company. In other words, corporate governance is crucial in establishing mechanisms that ensure the company's resources are employed for the benefit of the shareholders **(**Dechow et al., 1996). Best practice of corporate governance helps companies to avoid financial and operational problems (Mohd Iskandar, Rahmat, Mohd Noor, Mohd Saleh & Ali, 2011). The quality and nature of corporate governance can affect the structure of the financial system. If shareholders are poorly protected and companies are poorly governed, then one would not expect to witness a thriving market for publicly traded equity (Henderson, 1986). The quality of corporate governance also matters significantly for developing countries, in contributing to a country's ability to achieve sustained productivity growth and lasting democratic political institutions, both of which are crucial for long-term national development (Lin, 2001; Malherbe & Segal, 2001; Oman, 2001).

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2.5.2 Prior studies on corporate governance and earnings management

A growing body of literature investigates the ability of corporate governance attributes to reduce the opportunistic behaviour of managers to manage earnings. From an agency perspective, the ability of boards in overseeing and monitoring management activities is dependent upon their independence from management (Beasley, 1996; Dechow et al., 1996). This notion is supported by the extant literature, which suggests that outsiders or non-executive directors may help to alleviate the agency problem by monitoring and controlling the opportunistic behaviour of management (Jensen & Meckling, 1976; Haniffa & Hudaib, 2006).

An early study by Klien (2002) on the relationship between good corporate governance and earnings management, presents evidence that the audit committee and board independence are associated with a lower level of abnormal accruals in the United States. This finding is supported by Peasnell, Pope and Young (2005), who find that the proportion of outside directors is negatively related to income-increasing earnings management, to avoid reporting losses and earnings reduction. However, their result does not find a comparable role for audit committee independence. Similarly, Xie, Davidson and Dadalt (2003) illustrate that the independence of outside directors is associated with a lower level of earnings management. In addition, they also report that the background of directors (e.g. experience in other corporation) and the number of the board members meeting are associated with a reduced level of earnings management. Davidson, Goodwin-Steward and Kent (2005) extend this research area in Australia, finding evidence to support the view that the board's and the audit committee's independence (proxy by non-executive directors) are crucial for constraining opportunistic earnings management. In India, Sarkar, Sarkar and Sen (2008) study 500 large

Indian companies, and report that it is not board independence per se, but rather board quality, that is crucial for mitigating earnings management. Sarkar et al. use board "busyness", board "diligence", directors' shareholding and CEO duality as proxies for board quality.

Bradbury, Mak and Tan (2006) examine board and audit committee characteristics in mitigating the opportunistic behaviour of managers, using Singapore- and Malaysia-based data. They find that both board size and audit committee independence are related to lower abnormal working capital accruals, and suggest that the audit committee is effective in the financial reporting process, by reducing the level of income increasing abnormal accruals, especially when all members of the audit committee are independent directors. Choi, Jeon and Park (2004) study the influence of audit committee characteristics on the earnings management behaviour of Korean public companies, and find that the independence and competency of the audit committee are associated with earnings management. Another study by Felo, Krisnamurthy and Solieri (2003) investigates the relationship between audit committee financial expertise, independence and size and the quality of financial reporting. They report that the percentage of audit committee members having expertise in accounting or financial management positively related to earnings quality, suggesting that mandating greater expertise on the audit committee, rather than simply requiring one expert on the audit committee, may be beneficial to enhancing earnings quality. Consistent with Felo et al.'s findings, Carcello, Hollingsworth, Klien and Neal (2006) document that audit committee financial expertise is associated with lower levels of earnings management, and is more pronounced when the committee members have prior work experience in accounting. Moreover, they also find that the relationship between earnings management and accounting financial expertise is stronger when these experts are independent.

In China, Lo, Wong and Firth (2010) find that firms with a board that has a higher percentage of independent directors, or which separate the roles of chairman and CEO, or have financial experts in their audit committees, are less likely to manipulate transfer prices in related-party sales transactions. The findings on the relationship between the board and audit committee independence, and earnings management, in Malaysia, demonstrate mixed results. Abdullah and Mohd Nasir (2004) examine firms from the Bursa Malaysia non-financial Main Board in 1998, and present evidence that neither board independence nor audit committee independence effectively constrains the accrual management level. Similarly, another study by Abdullah (2002), on public companies prior to the revamp listing requirement mandated by Bursa Malaysia in 2001, indicates that the composition of the board of directors has no significant relationship with earnings management. Mohd. Saleh, Mohd. Iskandar and Rahmat (2005b) analyse 561 firms listed on Bursa Malaysia in 2001, soon after the announcement of the Malaysian Code of Corporate Governance was mandated. They investigate some corporate governance characteristics in relation to earnings management. They also find similar findings that the independent characteristic of the board cannot limit opportunistic behaviour in firms with CEO duality status. Johari, Mohd Saleh, Jaafar and Hassan (2008) also conclude that a composition of one-third independent directors in the board, as suggested by Malaysian Code of Corporate Governance, is not adequate to monitor management from earnings management practices.

However, Abd Aziz, Mohd Iskandar and Mohd Saleh (2006) document that board independence is significantly negatively associated with discretionary accruals. This result is inconsistent with previous studies. Similar results were found for the relationship between accounting literacy of the audit committee and discretionary accruals. Their results also show a significantly negative relationship between audit quality and discretionary accruals. These

findings are argued as consistent with the assumption in agency theory that superior audit quality can reduce agency cost. In sum, their study suggests that good corporate governance, the accounting expertise of the audit committee and high audit quality may mitigate managers' opportunistic behaviour. Another study by Abdul Majid (2007) extends the literature on earnings management in Malaysia. The study focuses on two main independent variables: audit committee and board of director characteristics. Based on 106 public listed firms, using univariate and multivariate analysis, the study reveals that the size of the audit committee and directors' shareholdings are significantly associated with earnings management. It is consistent with prior literature that a larger audit committee may help in curtailing this activity. Md. Yusof (2010) further investigates several pertinent audit committee characteristics, and their relationship with discretionary accruals, reported by MESDAQ[10] companies. He finds no evidence to suggest that an audit committee with financial expertise (a former senior auditor or a former CFO), or a more diligent audit committee (meetings held), are significant in the absolute discretionary accruals. However, further analysis shows that more a diligent audit is negatively associated with income-increasing discretionary accruals and income-decreasing discretionary accruals. Similarly, an audit committee with financial experts is negatively associated with income increasing-discretionary accruals.

One of the most commonly used metrics of corporate governance variables is board size. According to the Malaysian Code on Corporate Governance, the board of directors should determine the optimum number of board members to ensure that the board discharges its duties effectively. Lipton and Lorsh (1992), and Jensen (1993), claim that board monitoring will be less effective if the board of directors is too large, due to the increase of free-riding

[10] Malaysian Exchange of Securities Dealing and Automated Quotation (MESDAQ) is a specialized market for technology-based and/or high-growth companies.

directors (Hermalin, 2003). This proposition is supported by Eisenberg, Sundgren and Wells (1998), who report an inverse relationship between board size and firm performance in small and medium-size Finnish firms. Similarly, a study of US firms reports a negative association between board size and firm value (Yermack, 1996). However, some authors argue that larger boards are capable of monitoring top management activities, as this has more capabilities (Zahra & Pearce, 1989), and has varied expertise (Abdul Rahman & Mohamed Ali, 2006). Consistent with this view, Cheng (2008) and Dalton, Daily, Johnson and Ellstrand (1999), report that board size is positively associated with firm performance. Xie et al. (2003) document a negative relationship between board size and discretionary current accruals. This finding is supported by Larcker et al. (2007), who find a similar relation between board size and abnormal accruals. Furthermore, a study of Malaysian firms presents evidence that a lower level of discretionary accruals is associated with a larger board (Wan Ismail, Dunstan & Zijl, 2009). However, Abdul Rahman and Mohamed Ali (2006), and Cheng (2008), demonstrate a positive relationship between the size of the board and abnormal accruals, suggesting that a larger board is ineffective in deterring earnings management.

The Cadbury Report (1992) and the Malaysian Code on Corporate Governance recommend that the role of a board's chairman and chief executive officer (CEO) should not be assigned to the same person, to avoid the risk of directors being ineffective due to the excessive power granted to the CEO. If the top two positions are combined, it will affect the duty of directors to be independent, and the board's intensity in monitoring top management will be reduced (Dobrzynski, 1991). In addition, the power of the CEO in setting the board's agenda and controlling the flow of information could also impair the monitoring roles of the board in overseeing the managers (Solomon, 1993). If the board is highly influenced by management, it will not be able to control the management activities, as the chairman, who is also part of

the management, will overrule the board's decisions (Abdullah, 2004). Prior studies provide little evidence on the relationship between earnings management and CEO duality. In a study of firms subject to enforcement action by SEC, Dechow et al. (1996) find that earnings manipulators are more likely to have CEOs who also served as board chairmen. Beekes, Pope and Young (2004), who examine the relationship between earnings quality and board composition in UK firms, document that firms with CEO duality have an impact on the relationship between board independence and earnings timeliness, where firms with more independent directors report bad news in a more timely manner than firms without CEO duality. Klien (2002) also reports that the level of discretionary accruals decreases in companies with the separation of the two positions. Among Indian public companies, Sarkar et al. (2008) find that CEO duality is associated with earnings management behaviour. In the Malaysian setting, Mohd. Saleh et al. (2005b) find that firms with CEO duality are more likely to manage earnings than firms with the two roles separated, and suggests the separation of the two roles in public companies. However, Xie et al. (2003) find that CEO duality is unrelated to discretionary accruals. Malaysian studies by Abdul Rahman and Mohamed Ali (2006), and Johari et al. (2008), report similar results, suggesting that the separation of the role between the chairman and CEO has no effect in reducing earnings management.

2.6 Summary

This chapter reviews the reporting issue of fair value accounting, the reporting requirements under FRS 136, prior studies on impairment and impairment reversals, literature pertaining to the issues on earnings management and the role of corporate governance. As discussed in this chapter, FRS 136 requires companies to recognise an impairment loss when the recoverable amount is lower than their carrying amount. The standard also allows the reversal of the

impairment loss, and its reporting as an income item in the financial statements. The recoverable amount is based either on the fair value less the cost to sell or the value in use. Hence, in impairment testing, fair value measurement is used in the determination of impairment/reversal recognition. Fair value measurement is increasingly being adopted around the world, because it is believed that such measurement provides relevant information to users of the financial statement. In relation to the impairment standard, the financial reporting under this standard may provide useful information because of the use of fair value measurement in impairment testing. Fair value measurement helps users to predict future firm performance. Hence, fair value information on impairment/reversals should also provide users with the predictive value in the information. However, estimates used in the determination of fair value information may provide an opportunity for self-interested managers to manipulate earnings. To explore the informative value of fair value measurement in the reversal of impairment losses, this study examines whether such information provides future information about the reporting entity to the users of financial statement.

As explained above, the use of estimates in the determination of fair value less the cost to sell or value in use may provide an opportunity for managers to manipulate earnings. Estimates require managers to use their judgement and private knowledge about the firms to predict future performance. Hence, the impairment and reversal of impairment recognition is discretionary, and may be used to manage earnings. To answer the question of whether the impairment reversals are recognised opportunistically, this study examines whether the Malaysian firms recognise the impairment reversals to manage earnings. There are lots of studies examining earnings management behaviour using aggregate accruals and extensive studies on the role of corporate governance to mitigate the activity. Only a few studies examine separately the incentives to manage earnings using specific accruals. Based on the

earnings management literature, studies on aggregate accruals and specific accruals are conducted separately, and the relationship between both studies is examined as additional with a minor concentration. As no extensively detailed study investigates the relationship between aggregate accruals and specific accrual, this study focuses directly on the association between both aspects.

This chapter also discusses the role of corporate governance in mitigating the opportunistic behaviour of managers. Good corporate governance practices may control the behaviour of managers, and help to protect the interests of stakeholders. The last part of this study examines whether this mechanism plays a role in curtailing and reducing earnings management using impairment reversals. The next chapter discusses the sample and research methods used to answer the research questions.

CHAPTER 3: SAMPLE AND RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the sample and the methodology used to empirically answer the research questions: Does the reversal of impairment loss reporting portray the reality of economic performance, or is it associated with opportunistic earnings management behaviour? Is reversal reporting associated with other manifestations of earnings management? What is the influence of corporate governance in reversal reporting? The remainder of this chapter is organised as follows: Section 3.2 explains the sample selection procedures and data sources. Section 3.3 describes the control group selection procedure. Section 3.4 discusses the methods used to examine the performance of all reversal firms. The first part of this section explains the procedures undertaken for the comparative analysis between reversal firms and non-reversal firms. Next, the models used to examine the association between reversal reporting and future firm performance are discussed. Lastly, the model used to examine the relationship between reversals and stock market returns is presented. All empirical analyses explained in Section 3.4 are performed to examine whether the reversals reported by Malaysian firms reflect the reality of economic performance.

Section 3.5 explains the methods used to examine whether reporting incentives influence the recognition of impairment reversals. Specifically, this section explains the procedure undertaken to distinguish between reversal firms that are likely to manage earnings (reversals earnings managers) and those that report reversals based on the economic reality (reversal non-managers of earnings). The section explains the abnormal accruals model used to distinguish between both subsamples. The measurement of the model is also discussed. The

section also explains the differences in differences tests between reversals earnings managers and their control firms, and reversals non-managers of earnings and their control firms. The models used to examine the association between reversal reporting and future firm performance moderated by the incentive to manage earnings are also explained. Lastly, this section also explains the models used to examine the relationships between reversals reported by earnings managers and non-managers of earnings, and stock market returns.

The research methods used to examine the association between reversals and the motivation to avoid earnings declines are presented in Section 3.6. The section explains the univariate and multivariate analysis undertaken in this study. The models used to examine the influence of corporate governance, debt levels and CEO changes on the association between reversal and motivation to avoid earnings declines are also explained in the section. The final section summarises this chapter.

3.2 Sample selection procedure and data sources

FRS 136, *Impairment of Assets*, is effective for financial statements covering periods on or after 1 January 2006, with early adoption encouraged. Before the issuance of FRS 136, the Malaysian Accounting Standards Board (MASB) issued MASB 24, *Impairment of Assets*, in 2002, and later, FRS 136_{2004}, in 2004. Public listed companies were expected to formally adopt FRS 136 in 2006, with some early adoption by public companies prior to 2006. According to the impairment standard, an impairment loss can be reversed whenever the indication of impairment is deceased. Therefore, companies recognising an impairment loss can reverse the previous impairment loss as early as one year after the recognition.

As the current study focuses on reversal reporting, and, to reflect current practices, Malaysian public listed companies recognising an impairment reversal from 2006 to 2009 are selected as the sample for this study. A list of all companies is obtained from the Bursa Malaysia website, at http://www.bursamalaysia.com/website/bm/listed_companies/list_of_companies.html. Information regarding changes of companies' names is obtained at http://www.bursamalaysia.com/website/bm/listed_companies/list_of_companies/change_of_name.html. The information regarding changes of companies' names is necessary, as several companies have changed their names during the period 2006-2009, and the previous names did not appear in Datastream. Furthermore, the annual reports for each company are presented in the Bursa Malaysia website, using the current year name, rather than the name as at the time that the list of companies was obtained.

The annual reports of all companies can be viewed directly from the website, and are downloaded when the reversal firms are identified. If the annual reports are not available on the website, the respective companies' websites are perused. The past annual reports are available under the "investor relations" section. Bank and financial institutions are excluded because they are not comparable with those of non-financial companies. This type of company has different accounting and regulatory systems in preparing companies' annual reports.

3.2.1 Identification of reversal firms

This study follows several approaches to identify companies with reversal of impairment recognition during the period 2006-2009. An exploration of the data types in Datastream finds that only data types related to impairment loss recognition are available for four types

of non-current assets[11]. Therefore, the annual reports of all public companies listed on Bursa Malaysia are examined to identify reversal firms. Reversal firms are those recognising a reversal of an impairment loss in income statements during the period of study. Data are gathered by reading the annual reports of all public companies from 2006 to 2009. Based on the listing statistics at www.bursamalaysia.com, there are 899, 863, 855 and 960 companies listed on Bursa Malaysia from 2006, 2007, 2008 and 2009, respectively.

A list of reversal firms is obtained through a keyword search. The words used are "reversal of impairment loss", "write back of impairment loss", "written back impairment loss" and "reversal of diminution in value", as the firms use different words to report the account related with impairment reversal in the income statements and cash flows statements. If the searching process fails to find the words entered, cash flow statements are examined, in case companies use different terms to represent the reversal gain. All accruals items related to the income statements are presented in the cash flow statements for companies that prepare the statement under the indirect approach. According to FRS 136 paragraph 126(b), the amount of reversals of impairment losses should be presented in profit or loss during the period. These amounts are reported before tax, and should be presented in separate line item(s), as illustrated in Appendix A.

The reversal amount and the type of non-current assets are collected, and are cross-checked in the notes of the accounts. As FRS 136 is only applicable to non-current assets, only impairment reversals related to non-current assets are collected to represent the sample (i.e. property, plant and equipment, investment in associates, other investment and investment properties). Goodwill impairment is excluded, as the standard prohibits the reversal of this

[11] The four data types are: impairment of property, plant and equipment, impairment of goodwill, impairment of intangible assets and impairment of financial assets.

asset. If firms report the reversal items in general terms – for example, "reversal of impairment loss" – without specifying the type of assets, an examination of each type of fixed assets is conducted to identify the respective account group. Reversal recognitions from the disposal of fixed assets are excluded from the sample, as the motives for disposal and reversal from impairment testing could be different. Even though the data collection process is time-consuming, the data collected can be precisely identified. Following the above procedure, this study identifies an initial sample of 242 reversal firm-year observations for 151 non-financial firms.

Table 3.1: Initial sample selection

Sample period: 2006-2009	*Number of firm-years*
Initial identified observations	274
Less: Bank and financial institutions	(11)
Reversals made for disposal of fixed assets	(21)
Initial reversal observations	242

Table 3.1 illustrates how the 242 reversals are selected. The initial keywords search yields 274 reversals from 2006 to 2009, in four types of fixed assets. 11 reversals are attributed to financial firms, and 21 reversals are related to the disposal of assets. After excluding these reversals, the remaining 242 reversal observations represent the initial sample of this study. Table 3.2 presents the summary statistics of 242 initial reversal firm-year observations from 2006 to 2009. Panel A of Table 3.2 summarises the sample breakdown by accounting year end. The reversal observations are 46, 68, 49 and 79 for 2006, 2007, 2008 and 2009, respectively. These statistics represent 4.89%, 8.11%, 5.85% and 10.31% of total listed firms at Bursa Malaysia from 2006-2009. These figures display an increasing trend of reversal reporting in Malaysia, except for the year 2008.

Table 3.2: Summary statistics of initial reversal firm-year observations from 2006-2009

	Number of firm-year observations		Percentage of firm-year observations (%)	
Panel A: Year breakdown				
2006	46		19.01	
2007	68		28.10	
2008	49		20.25	
2009	79		32.64	
Total	**242**		**100.00**	
Panel B: Type of assets breakdown				
Property, plant and equipment	96		39.67	
Investment in associates	24		9.92	
Other investments	100		41.32	
Investment properties	13		5.37	
Multiple	9		3.72	
Total	**242**		**100.00**	
Panel C: Industry breakdown				
Technology and telecommunications	11	(37)	4.55	(4.45)
Industrial metals, mining, forestry, paper	8	(52)	3.31	(6.25)
Oil, gas, water and electricity	6	(38)	2.48	(4.57)
Media	6	(7)	2.48	(0.84)
Property	34	(100)	14.05	(12.02)
Industry products	66	(222)	27.27	(26.68)
Construction and materials	28	(112)	11.57	(13.46)
Travel and leisure	24	(29)	9.92	(3.48)
Consumer products	59	(235)	24.37	(28.25)
Total	**242**	**832**	**100.00**	**100.00**

Figures in parentheses refer to the overall industry distribution in the Malaysian stock market, 2006-2009.

The total reversal firm-years from 2006-2009 is 242, and these observations are associated with 151 firms. The different figures between reversal firms and reversal firm-years indicates that a few companies reversed in two years or more during 2006-2009. The sample size in the current study is larger (242 firm-years), compared with 67 reversal firms from January 1 2005 to the first quarter of 2007, in Duh et al.'s study. Table 3.2, Panel B, illustrates the distribution of reversal observations breakdown by the type of fixed assets. A total of 96 (39.67%) observations reversed impairment loss in property, plant and equipment (PPE), and 100 (41.32%) firm-years recognised the reversal of impairment in other investments. PPE and other investment reversals represent almost 80% of the total recognition during 2006-2009. 24 (9.92%) and 13 (5.37%) firm-years reversed the previously recognised impairment loss in investment in associates and investment in properties, respectively.

Panel C of Table 3.2 reveals the reversal firm-years breakdown by industry. This industry classification is based on the Datastream 4.0 level 3 sector index, with a combination of seven sectors. Because of this, the number of sectors has reduced from 16 sectors to 9 sectors. This procedure is necessary to increase the matching number of reversal firms with non-reversal firms. In general, the sample comprises a range of industries, with most in property (34, or 14.05%), industry products (66, or 27.27%), construction and material (28, or 11.57%), travel and leisure (24, or 9.92%), and consumer products (59, or 24.37%). The other four sectors with the lowest frequency are technology and telecommunications (11, or 4.55%), industrial metals, mining, forestry, paper (8, or 3.31%), oil, gas, water and electricity (6, or 2.48%), and media (6, or 2.48%). The proportion of the firms in the sample under study in each sector is also proportionate with those in the overall stock market. The comparison between the industry distribution of the sample and the overall industry distribution (as

indicated in the parentheses of Table 3.2, Panel C) illustrates that the sample industry distribution is comparable to that of the Malaysian stock market.

3.2.2 Data sources for corporate governance and other financial data

Data on corporate governance variables is hand-collected from the 2006, 2007, 2008 and 2009 annual reports for each firm-year. The process involves an examination of the corporate information section, directors' profiles, statements on corporate governance, audit committee reports and directors' reports to identify the board and audit governance characteristics. As the Malaysian Code on Corporate Governance and the Bursa Malaysia Listing Requirements specify that public companies disclose the details of board members in annual reports, information regarding board independence can be gathered directly from these reports.

Table 3.3 Financial data and codes

Financial data	Datastream code
Abnormal working capital accruals (AWCA)	
Working capital	WC03151
Cash	WC02005
Short-term debt	WC03051
Total assets	WC02999
Total sales	WC01001
Cash flow from operations	WC04860
Net income	WC01751
Operating income	WC01250
Book value of equity	WC03501
Market value of equity	WC08001
Share price	P
Dividend yield	DY
Market-to-book ratio	MTBV
Total liabilities	WC03351
Depreciation	WC01151

Abnormal working capital accruals and other financial attributes are calculated based on data collected from Datastream. Data for the control group are also collected from Datastream. If the financial data is not available in Datastream, the relevant data is collected directly from the annual report, to ensure that the observation is retained in the sample. The Datastream codes for all financial variables used in this study are outlined in Table 3.3.

3.3 Control group selection procedure

FRS 136 requires public companies to recognise an impairment loss when the carrying amount of assets is higher than the recoverable amount. This unrealised loss can be reversed in the future if the asset value is recovered, or partly recovered, as a result of a higher recoverable amount. This procedure provides guidance on when and how to recognise an impairment loss. This standard also requires managers to use their professional judgement in estimating fair value less the cost to sell, and future cash flows to compute value in use. Some authors argue that this rule gives managers considerable discretion in the timing and amount of write-downs of impaired assets (Titard & Pariser, 1996; Healy & Wahlen, 1999; Alciatore et al., 1998; Riedl, 2004). In order to examine whether reversal firms report impairment reversal opportunistically or for economic reasons, a control group is constructed to analyse the differences between both groups. Control companies are companies recognising an impairment loss, but which do not reverse the loss in the year of study.

The one-to-one matching procedure is performed by first searching for the same industry as classified in Table 3.2, Panel C, and then the one with the closest firm size (proxied by the total assets in Datastream, while the difference in firm size should not exceed 30% of the reversal firm's total assets), to obtain corresponding non-reversal firms. These control firms

are firms with beginning accumulated impairment loss accounts in any of four types of fixed assets in Table 3.2, Panel B, in the matching year, which did not reverse the impairment recognised under the four years under study (2006-2009). This matching procedure is to ensure that the final sample of reversal firms and non-reversal firms are firms in the same industry, and of the closest firm size. This results in some degree of similarity across the sample, with regard to product market and scale. This procedure yields a sample of 182 matched firm-years, associated with 118 firms, and represents the full sample used in the empirical analysis below.

The number of unmatched firm-years is 60, represent approximately 25% of the original reversal firm-years. Among the reasons for the unsuccessful matching of the 60 observations are as follows: the limited available potential of control firms in a particular industry; a big difference in the firm size between reversal firms and potential control firms; and a limited number of companies with a beginning balance of accumulated impairment loss. Out of 60 unmatched firm-years, 4 observations are from technology and telecommunications, 8 observations are from property, 4 observations are from oil, gas, water and electricity, 9 observations from industry products, 4 observations from the media, 1 observation from construction and materials, 15 observations from travel and leisure, and, lastly, 15 observations from consumer products. Industrial metals, mining, forestry and paper is the only industry that is completely matched to control companies. Table 3.4 presents the summary statistics of matched reversal firm-years.

Table 3.4: Summary statistics of matched reversal firm-years from 2006-2009

	Number of matched firm-years		Percentage of matched firm-years (%)	
Panel A: Year breakdown				
2006	31		17.03	
2007	43		23.63	
2008	39		21.43	
2009	69		37.91	
Total	**182**		**100.00**	
Panel B: Type of assets breakdown				
Property, plant and equipment	66		36.26	
Investment in associates	19		10.44	
Other investments	78		42.86	
Investment properties	11		6.04	
Multiple	8		4.40	
Total	**182**		**100.00**	
Panel C: Industry breakdown				
Technology and telecommunications	7	(37)	3.85	(4.45)
Industrial metals, mining, forestry, paper	8	(52)	4.40	(6.25)
Oil, gas, water and electricity	2	(38)	1.10	(4.57)
Media	2	(7)	1.10	(0.84)
Property	26	(100)	14.29	(12.02)
Industry products	57	(222)	31.32	(26.68)
Construction and materials	27	(112)	14.83	(13.46)
Travel and leisure	9	(29)	4.94	(3.48)
Consumer products	44	(235)	24.17	(28.25)
Total	**182**	**(832)**	**100.00**	**100.00**

Figures in parentheses refer to the overall industry distribution in the Malaysian stock market during 2006-2009.

3.4 Reversal of impairment losses and firm performance

The main objective of this study is to examine whether Malaysian public companies recognised impairment loss reversals as a response to changes in economic conditions of the firms. The first stage of the empirical analyses is an investigation of the reversal firms' performance, measured using accounting and market-based performance indicators. This section explains univariate and multivariate analyses of the firm performance in the reversal year and one year ahead, using the full sample.

3.4.1 Univariate comparisons between reversal firms and control firms

The first analysis is a univariate comparison between reversal firms and control firms, to investigate any significant differences between the two groups. The size of the sample is 182 observations for the reversal group, and 182 observations for the control group. The variables examined in this analysis are abnormal working capital accruals, sales, beginning balances of accumulated impairment loss, return on equity and adjusted return on equity. The abnormal working capital accruals are measured using the DeFond and Park (2001) model.[12] Sales figures are measured as the natural logarithm of total sales. The beginning balance of accumulated impairment refers to the balance of accumulated impairment as reported on the balance sheet in the reversal year. Return on equity is calculated as net income in the reversal year divided by total equity at the end of the year. Lastly, the adjusted return on equity is the return on equity before the reversal amount. The reversal amount is excluded from the determination of return on equity, so that the ratio only reflects the performance of reversal firms without reversal items.

[12] The measurement of the abnormal accruals model is explained in Section 3.5.

The analysis involves the comparison of means between reversal firms and control firms, and the difference is tested using t-test analysis. This univariate analysis is essential to explore differences, in terms of performance and the level of abnormal accruals. Reversal firms are firms which recognised impairment in previous years and reversed the impairment as a response to the better performance of the fixed assets in generating revenue. The assets are also expected to generate positive cash flows in future. FRS 136 lists a number of indications for reversals. Among these are an increase in the market value of the assets, significant changes with a favourable effect on the entity which have taken place during the period in the technological, market, economic or legal environments, the reduction of market interest rates, significant changes in the extent or manner an asset is used and, lastly, the economic performance of an asset which will be better in the future. Meanwhile, the control firms did not reverse the impairment, because the favourable conditions did not occur. Thus, if reversal firms reverse the impairment loss based on the reality of the economic condition of the firm, it is expected that reversal firms report superior performance, as compared to the control firms. Regarding the abnormal accruals, if reversal firms report the reversals without the intention to manage earnings, then there should be no differences, in terms of abnormal accruals between both groups.

3.4.2 Multivariate analysis: reversal of impairment losses and future firm performance

FRS 136 allows firms to reverse the impairment recognised previously if the recoverable amount, calculated as its fair value less cost to sell or value in use, is greater than the carrying amount. Thus, if the impairment is reversed to reflect economic fundamentals, the reversal is predicted to be associated with future operating performance and current stock price

performance. The recoverable amount should be calculated, which is based either on the estimated future cash flows generated from the use of the assets or fair value less the cost to sell of the assets. The reversal is recognised if the recoverable amount is higher than the carrying amount of the assets. Thus, the recognition of reversal is associated with future firm performance if managers calculate the recoverable amount, as stipulated under FRS 136, *Impairment of Assets*.

Aboody et al. (1999) find that the revaluation of fixed assets is associated with future firm performance, measured by operating income and cash flow from operations. As discussed in Chapter 2, an impairment loss is accounted for in a manner which in the opposite of upward revaluation. Then, the reversal of an impairment loss will be seen as an upward revaluation, and should be associated with future operating performance in the same manner as a revaluation. In particular, the determination of the recoverable amount for an impairment reversal can be based on the market value of assets, which is similar to revaluation. Due to these similarities between reversal of impairment and revaluation, a positive relationship between reversals and future firm performance is expected for the reversal firms. Following Aboody et al. (1999), with respect to the revaluation of fixed assets in the UK, Equations 3-1 to 3-4 are estimated for 182 companies that reversed impairments. The control firms are not tested in these estimations, as those firms did not reverse the impairment charges.

Equations 3-1 to 3-4 are as follows:

$$CFO_{t+1} = \alpha + \beta_1 REV_t + \beta_2 CFO_t + \beta_3 WC_t + \beta_4 SIZE_t + \beta_5 MTB_t + \varepsilon_t \quad (3\text{-}1)$$

$$\Delta CFO_{t+1} = \alpha + \beta_1 REV_t + \beta_2 \Delta CFO_t + \beta_3 \Delta WC_t + \beta_4 SIZE_t + \beta_5 MTB_t + \varepsilon_t \quad (3\text{-}2)$$

$$OPIN^*_{t+1} = \alpha + \beta_1 REV_t + \beta_2 OPIN_t + \beta_3 SIZE_t + \beta_4 MTB_t + \varepsilon_t \quad (3\text{-}3)$$

$$\Delta OPIN^*_{t+1} = \alpha + \beta_1 REV_t + \beta_2 \Delta OPIN_t + \beta_3 SIZE_t + \beta_4 MTB_t + \varepsilon_t \quad (3\text{-}4)$$

Where:

CFO_{t+1} = net cash flow from operations in year t+1 divided by total assets at end of year t;

ΔCFO_{t+1} = change in net cash flow from operations, from year t to year t+1, CFO_{t+1} - CFO_t, divided by total assets at end of year t;

$OPIN^*_{t+1}$ = operating income before depreciation and amortisation expenses, reversal amount and AWCA in year t+1, divided by total assets at end of year t;

$\Delta OPIN^*_{t+1}$ = change in operating income before depreciation and amortisation expenses, reversal amount and AWCA, from year t to year t+1, divided by total assets at end of year t;

REV_t = reversal amount scaled by total assets at end of year t;

CFO_t = net cash flow from operations in year t, divided by total assets at end of year t;

ΔCFO_t = change in net cash flow from operations from year t-1 to year t, divided by total assets at end of year t;

$OPIN_t$= operating income before reversal in year t;

$\Delta OPIN_t$ = change in operating income before reversals from year t-1 to year t, divided by total assets at end of year t;

WC_t = working capital in year t, divided by total assets at end of year t;

ΔWC_t = change in working capital from year t-1 to year t, divided by total assets at end of year t;

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market-to-book ratio at end of year t.

Future firm performance indicators are regressed on reversal of impairment loss, to test whether reversal reporting is associated with future firm performance. The four equations are constructed using four performance indicators. The first and second equations (Equation 3-1 and Equation 3-2) estimate the relationship between the reversal of an impairment loss and one-year-ahead cash flow from operations, and the change in cash flow from operations, respectively. Coefficients on REV in Equations 3-1 and 3-2 represent the relationship between impairment reversals and subsequent one-year-ahead cash flow from operations and change in cash flow from operations, respectively. If reversal recognition by Malaysian firms reflects asset value changes, then it is expected that the coefficient on REV should be positive and significant. If reversal recognition does not explain future cash flow, then insignificant results will be observed.

Following Aboody et al. (1999), operating cash flows, CFO_t, and the change in cash flow from operations, ΔCFO_t, in reversal year, is included in the model to control for the effect of the time series properties of earnings on future cash flows. Working capital is included in Equations 3-1 and 3-2, as this is variable, and cash flow from operations have a significant relationship (Dechow, 1994). Total sales are included in the models, to control for the potential effect of size. The market-to-book ratio, MTB, is incorporated in the estimation models, to control for potential effects of risk and growth (Fama & French, 1992; Aboody et al., 1999).

Finally, Equations 3-3 and 3-4 are used to estimate the relationship between reversal and one-year-ahead operating income, and the change in operating income, respectively. Both equations use one-year-ahead operating income ($OPIN^*_{t+1}$) and change in operating income as dependent variables. $OPIN^*_{t+1}$ ($\Delta OPIN^*_{t+1}$) is calculated as the net operating income (change in operating income) in year t+1, before depreciation and amortisation expenses, reversal amount and AWCA. Operating income is income before interest and income tax. Following Aboody et al. (1999), interest and income tax are excluded in performance measures, because Equations 3-3 and 3-4 focus on operating performance. Depreciation and amortisation expenses are added back, as reversal recognition affects the determination of future depreciation. The higher the reversal amount, the bigger the new carrying amount of the asset, and the new depreciation expense will be calculated based on this new carrying amount. Aboody et al. argue that the exclusion of depreciation and amortisation in the determination of operating income eliminates any mechanical effects of reversal on the performance measure. Reversal in year t+1 is also excluded, as such a gain is not a performance effect derived from the recognition of reversal in year t. Lastly, abnormal working capital accruals are excluded to ensure that the performance measure is not contaminated with abnormal accruals. Operating income consists of cash flow from operations and total accruals. The abnormal accruals are excluded from the total accruals because they do not represent the economic effect of reversal recognition.

Similar to Equations 3-1 and 3-2, Equations 3-3 and 3-4 predict that, if reversal recognition by Malaysian firms reflects asset value changes, the coefficients on REV in both equations are expected to be significantly positive. The expectations for all other variables' coefficients are similar to Equations 3-1 and 3-2.

3.4.3 Multivariate analysis: Reversal of impairment losses and stock market returns

This section examines the economic reality of reversal reporting, by focusing on the value relevance of such specific accruals. Specifically, this section examines whether managers use their discretion over impairment reversals to provide value-relevant signals to investors. This study assumes that the stock market is efficient in reflecting information, including financial statement information. The accepted view in an efficient market hypothesis is that, when publicly available information arises, the news spreads very quickly, and is incorporated in security prices without delay. Assuming market efficiency, only reversals that reflect the true asset performance will be reflected in the stock prices.

This study defines value relevance as the association between accounting information and equity market value or stock returns (Francis & Schipper, 1999; Barth, Beaver, & Landsman, 2001). The positive coefficient on the accounting information variable indicates that the information is value-relevant in setting a share price (Barth, 2002; Beaver, 2002). Consistent with this argument, if reversal information is value-relevant, the reversal recognition should be positively associated with stock valuation; whereas, if firms report reversals opportunistically, the information should be less value-relevant in determining the stock price.

In implementing the test of value relevance, this study follows prior studies, and regresses the stock returns on reversals. As suggested by Kothari and Zimmerman (1995), this study uses return models to test the association between reversals with the change in stock value over a year, as these models have less serious econometric problems. Francis and Schipper (1999) express the value relevance measured using the long window approach as the ability of

financial statement information to capture or summarise information, regardless of the source, which effects share values. They claim that this interpretation does not require financial statements to be the earliest source of information. Consistent with this argument, reversal information used in this study is based solely on the financial statements reported in the annual reports of the firms as being the annual summary of financial information. Following Aboody et al. (1999) and Chen et al. (2009), this study regresses 12-month stock returns on reversals of impairment loss, expressed as follows:

$$AbReturn_t = \gamma_0 + \gamma_1 REV'_t + \gamma_2 NI_t + \gamma_3 BTM_t + u_t \qquad (3\text{-}5)$$

where,

$AbReturn_t$ = control group-adjusted returns beginning eight months before the financial year-end, and ending four months after the financial year-end;

REV'_t = reversal amount scaled by market value of equity at the end of year t-1;

NI_t = net income before reversal in year t scaled by market value of equity at the end of year t-1;

BTM_t = the book-to-market value ratio at the end of year t-1.

The annual control group-adjusted return in year t is defined as the 12-month return (with dividend) of reversal observations minus the control group return in reversal year. The sample size to test this model is reduced to 178 observations, as the stock market price of four observations are not available in Datastream. The coefficient on REV' in Equation 3-5 represents the relation between reversals and stock market return. A significantly positive β_1 suggests that reversal information is viewed as value-relevant by investors. Similarly to

Aboody et al. (1999) and prior studies (Easton & Harris, 1991; Easton & Harris, 1993; Rees et al., 1996), this study also predicts that β_2 and β_3 are positive.

3.5 Reversal of impairment losses and reporting incentives

This study further investigates whether the earnings management motive influences reversal reporting. According to FRS 136, reversal recognition should be reported in the income statement. Thus, the recognition directly increases the reported income. As the earnings component is an important performance measure of a firm, the earnings management motive may lead to opportunistic reversal reporting. Prior studies provide evidence on various contracting and market-based incentives for earnings management through asset impairment reversals (Duh et al., 2009; Chen et al., 2009; Zhang et al., 2010). Thus, this study separates the reversal sample into those firms that are likely to be earnings managers and those that are not. In particular, this study separates the reversal firms based on abnormal working capital accruals (AWCA) measured using the DeFond and Park (2001) abnormal accrual model.

3.5.1 Measure of abnormal working capital accruals

Due to the limited number of studies examining opportunistic reporting using reversal of impairment loss, the evidence of the manipulation of earnings using this unrealised gain is inconclusive.[13] This study relates the reversal recognition with a proxy for earnings management, in order to distinguish between reversal firms that report the impairment

[13] Based on the literature review, only three studies specifically examine the opportunistic behaviour of impairment reversal reporting. Duh et al. (2009) examine the use of reversal reporting to avoid earnings decline; Chen et al. (2007) examine economic and management factors associated with reversal of impairment loss recognition; and Zhang et al. (2010) examine how Chinese public firms react to the prohibition of long-lived asset impairment reversals.

reversal opportunistically and the firms that recognise the gain as reflected by current economic situation.

A measure of earnings management using the Jones (1991) model, or its variations, has been used widely in previous research. However, it has been criticised, because the Jones (1991) model parameter estimates are biased, and measurement errors associated therewith could potentially induce erroneous conclusions regarding the existence of earnings management (Bemard & Skinner 1996; Healy, 1996). The model also requires a large time series of data and a large number of industry-specific observations, for the estimation of discretionary accruals (DeFond & Jiambalvo, 1994). Due to the small sample size, this study considers an alternative proxy for opportunistic earnings management that is independent from potential measurement errors associated with the Jones model parameters. In particular, a variable of abnormal working capital accruals (AWCA) is estimated using the DeFond and Park (2001) model. They define abnormal accruals as the difference between the current year's realised working capital accruals and the expected level of working capital accruals, where the historical relation of working capital to sales captures the expected working capital. DeFond and Park view the difference as the portion of working capital accruals that are unlikely to be sustained and are expected to reverse against future earnings. The empirical model is as follows:

$$AWCA_t = WC_t - [(WC_{t-1}/S_{t-1}) * S_t] \quad (2\text{-}4)$$

where:

$AWCA_t$ = abnormal working capital accruals in year *t*;

WC_t = non-cash working capital in year *t*, defined as (current assets - cash and cash equivalent) – (current liabilities – short-term debt);

WC_{t-1} = working capital in previous year;

S_t = sales in year *t*;

S_{t-1} = sales in previous year.

AWCA captures the deviation of the current year's working capital accruals from the normal level of working capital accruals required to support current sales. Thus, high levels of AWCA are interpreted as an indication of opportunistic earnings management.

Alternatively, the size of previously recognised impairment charges can be used to distinguish between opportunistic and true reporting. The over-stated impairment charges create a "cookie jar" reserve, to be reversed in future, to meet earnings targets. In addition, prior studies provide evidence that the impairment charges are associated with earnings management (Riedl, 2004; Zhang et al., 2010). However, based on performance analysis of the reversal firms with high accumulated impairment and those with moderate and low impairment, firms with high accumulated impairment are non-performing firms before the reversal year, and continue to underperform in the subsequent year. A comparison between reversal firms with high accumulated impairment and the reversal firms with moderate and

low accumulated impairment is presented in Appendices X and Y. The high accumulated impairment charges are more likely to reflect that the non-current assets are significantly impaired and unable to generate higher income in future. This argument is consistent with the findings of prior studies (Zucca and Campbell, 1992; Rees et al., 1996). They report that firms recording large impairment tend to exist in a period of declining financial performance, and become more apparent in the periods after the impairment year. Therefore, this study does not consider this alternative measure of earnings management, because the size of accumulated impairment is not a clear indicator for earnings management.

3.5.2 Identification of potential earnings managers and non-managers of earnings

Reversal firms are ranked according to the level of abnormal working capital accrual (DeFond & Park, 2001). The top 30% of reversal firms with positive abnormal working capital accruals are regarded as potential earnings managers. Such a grouping is constructed because reversal reporting may be associated with a manager's intention to increase earnings (Duh et al., 2009; Moehrle, 2002), and firms with positive abnormal working capital accruals are firms managing earnings upward (DeFond & Park, 2001; Peasnell et al., 2005; Rangan, 1998). The middle 40% of abnormal working capital accruals are regarded as non-managers of earnings, because these firms have the lowest absolute abnormal working capital accruals. This procedure yields 55 reversal observations in the top 30% of abnormal working capital accruals group and 73 reversal observations in the middle 40% of the abnormal working capital accruals group. The total sample size, including the control firms, is 256 observations. The remaining 30% are reversal firms with extreme negative abnormal accruals. These firms use abnormal accruals to reduce earnings; thus, it is not related to reversals which increase earnings. However, this group can also be regarded as potential non-managers of earnings.

The alternative measure used to define non-income-increasing earnings managers as the bottom 30% of AWCA is explained in Section 5.3: "Robustness checks". The findings reaped using this alternative measure are also presented in Chapter 5.

3.5.3 Difference in differences analysis

The first analysis after partitioning the reversal firms is a difference in differences analysis. In this analysis, the reversal firms are differentiated between reversal efficient accrual choice groups and reversal earnings management groups, based on the level of abnormal working capital accruals (DeFond & Park, 2001). The difference in differences analysis is performed based on 128 reversal observations and 128 observations from the control group, relating to nine variables: the beginning balance of accumulated impairment loss (BACC); adjusted return on equity (ROEadj); cash flow from operations in the reversal year (CFO_t); cash flow from operations one year ahead (CFO_{t+1}); operating income in the reversal year ($OPIN_t$); adjusted operating income in the reversal year ($OPIN^*_t$); operating income one year ahead ($OPIN_{t+1}$); adjusted operating income one year ahead ($OPIN^*_{t+1}$); and stock returns (Return).

The difference in differences tests is performed to differentiate between reversal earnings managers and reversal non-managers of earnings relative to their respective control groups, in terms of firm performance and the level of abnormal accruals. If reversal earnings managers report the reversal opportunistically, there should be a significant difference between reversal earnings managers and reversal non-managers of earnings relative to their control groups. The difference in differences is calculated using the following steps:

1. Rank all reversal firms according to their actual abnormal working capital accruals.

2. Group the top 30% of the sample as earnings managers, and the middle 40% of the sample as non-managers, of earnings.

3. Calculate the difference in the tested variables between reversal firms and control firms for both earnings managers and non-managers of earnings groups.

4. Test for the significance in the mean differences between the differences outlined in step 3.

3.5.4 Multivariate analysis: reversal of impairment losses, future firm performance and incentives to manage earnings

FRS 136, *Impairment of Assets*, allows firms to reverse the initial impairment recognised in previous years if indications of impairment no longer exist, or have decreased. However, the early version of the standard has been criticised as giving substantial flexibility to exercise judgments in determining and reporting an impairment loss (Titard & Pariser, 1996; Healy & Wahlen, 1999). A number of studies also find that the reversal of impairment loss is associated with opportunistic earnings recognition (Duh et al., 2009; Chen et al., 2009; Zhang et al., 2010). Thus, Equations 3-1 to 3-4 are modified, and reversal firms are differentiated between earnings managers and non-managers of earnings. Consistent with the difference in differences test, earnings managers are reversal firms in the 30%, with respect to actual abnormal working capital accruals, and the middle 40% are classified as non-managers of earnings.

In the following models, future firm performance indicators are regressed on reversal of impairment loss reported by earnings managers and non-managers of earnings. Equation 3-1A and Equation 3-2A estimate the relationship between reversal of impairment loss and one-

year-ahead future cash flow, and change in cash flow from operations by both groups, respectively, as outlined below:

$$CFO_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 CFO_t + \beta_4 WC_t + \beta_5 SIZE_t + \beta_6 MTB_t + \varepsilon_t \quad (3\text{-}1A)$$

$$\Delta CFO_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 \Delta CFO_t + \beta_4 \Delta WC_t + \beta_5 SIZE_t + \beta_6 MTB_t + \varepsilon_t \quad (3\text{-}2A)$$

where,

CFO_{t+1}= net cash flow from operations in year t+1, divided by total assets at end of year t;

Δ**CFO_{t+1}** = change in net cash flow from operations from year t to year t+1, divided by total assets at end of year t;

D is equal to one for reversal firms in the middle 40% of abnormal working capital accruals, measured using DeFond and Park's 2001 (non-managers of earnings) model; and is equal to zero for reversal firms in the top 30% of abnormal working capital accruals (earnings managers);

REV_t = reversal amount scaled by total assets at end of year t;

CFO_t = net cash flow from operations in year t, divided by total assets at end of year t;

Δ**CFO_t** = change in net cash flow from operations, from year t-1 to year t, divided by total assets at end of year t;

WC_t = working capital in year t, divided by total assets at end of year t;

Δ**WC_t** = change in working capital from year t-1 to year t, divided by total assets at end of year t;

$SIZE_t$ = log of total sales at end of year t;

MTB_t = market-to-book ratio at end of year t;

D*REV_t = interaction term of variables D and REV.

Equation 3-1A estimates the relationship between reversal recognition by earnings managers and non-managers of earnings, and the one-year-ahead cash flow from operations. From the model, the coefficient on REV represents the relationship between impairment reversals by earnings managers and the subsequent one-year cash flow from operations after reversal recognition, while the sum of $\beta_1 + \beta_2$ captures the relationship for non-managers of earnings. If reversal recognition by earnings managers reflects asset value changes, then it is expected that the coefficient on REV should be positive and significant. If reversal recognition by earnings managers does not explain future cash flow, then an insignificant result will be observed. The main focus of this model is the explanatory power of reversal recognition by non-managers of earnings. Non-managers of earnings are reversal firms without an incentive to manage earnings upward. Thus, if the reversals reported by non-managers of earnings reflect economic reality, it is expected that the relationship between reversal recognition by non-managers of earnings and one-year-ahead cash flow from operations is positive and significant, so the sum of $\beta_1 + \beta_2$ should be significantly positive.

β_2 represents the effect of reversal recognition on future performance by non-managers of earnings, as compared to earnings managers. If β_1 is positive, then it is expected that β_2 is significantly greater than β_1, indicating that reversal recognition by non-managers of earnings had greater association with future cash flows than earnings managers. If β_1 is significantly negative, β_2 is expected to be positive and significant, indicating different motives between both groups. While earnings managers opportunistically recognise reversal in their income statement, non-managers of earnings report the economic evidence of the recovery of their non-current assets. The expectations for all other coefficients are similar to Equation 3-1.

Equation 3-2A is similar to Equation 3-1A, except for the dependent variable. The focus of Equation 3-2A is the relationship between reversal recognition by earnings managers and non-managers of earnings, and changes in future operating cash flows. Change in cash flow from operations is the difference between the one-year-ahead operating cash flow and the cash flow in the reversal year. The recovery of non-current assets based on economic reality of non-managers of earnings is expected to be associated with positive change in operating cash flows. The expectations for all other variables' coefficients are similar to Equation 3-2.

Finally, Equations 3-3A and 3-4A are used to estimate the relationship between reversal and one-year-ahead operating incomes, and changes in operating incomes, reported by earnings managers and non-managers of earnings. The models are as follows:

$$OPIN^*_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D^* REV_t + \beta_3 OPIN_t + \beta_4 SIZE_t + \beta_5 MTB_t + \varepsilon_t \qquad (3\text{-}3A)$$

$$\Delta OPIN^*_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D^* REV_t + \beta_3 \Delta OPIN_t + \beta_4 SIZE_t + \beta_5 MTB_t + \varepsilon_t \qquad (3\text{-}4A)$$

Where,

$OPIN^*_{t+1}$ = operating income before depreciation and amortisation expenses, reversal amount and AWCA in year t+1, divided by total assets at end of year t;

$\Delta OPIN^*_{t+1}$ = change in operating income before depreciation and amortisation expenses, reversal amount and AWCA from year t to year t+1, divided by total assets at end of year t;

D is equal to one for reversal firms in the middle 40% of abnormal working capital accruals, measured using DeFond and Park's 2001 (non-managers of earnings) model; and is equal to zero for reversal firms in the top 30% of abnormal working capital accruals (earnings managers);

REV_t = reversal amount scaled by total assets at end of year t;

$OPIN_t$ = operating income before reversal in year t;

$\Delta OPIN_t$ = change in operating income before reversal from year t-1 to year t;

$SIZE_t$ = log of total sales at end of year t;

MTB_t = market-to-book ratio at end of year t;

$D*REV_t$ = interaction term of variables D and REV.

The above models use the one-year-ahead operating income ($OPIN*_{t+1}$) and the change in operating income as its dependent variables. Operating income in both models is adjusted for depreciation and amortisation expenses, the reversal amount and AWCA. Both models expect that, if reversal recognition by non-managers of earnings reflects asset value changes as compared to earnings managers, the coefficient on D*REV is expected to be significantly positive, indicating that non-managers of earnings recognise reversals as a result of the economic recovery of the assets. The expectations for the coefficients on all other variables are similar to Equations 3-1A and 3-2A. The sample size to test Equations 3-1A to 3-4A is 128 reversal firms, comprising 55 earnings managers and 73 non-managers of earnings.

3.5.5 Multivariate analysis: reversal of impairment losses, stock market returns and incentives to manage earnings

This study further examines the value relevance of impairment reversals reported by earnings managers and non-managers of earnings. The following model estimates the association between reversals recognised by both subsamples.

$$AbReturn_t = \gamma_0 + D + \gamma_1 REV'_t + \gamma_2 D*REV'_t + \gamma_3 NI_t + \gamma_4 BTM_t + u_t \qquad (3\text{-}5A)$$

where,

AbReturn$_t$ = control group adjusted returns beginning eight months before the financial year-end, and ending four months after the financial year-end;

REV'$_t$ = reversal amount scaled by market value of equity at the end of year t-1;

NI$_t$ = net income before reversal in year t, scaled by market value of equity at the end of year t-1;

BTM$_t$ = book-to-market value of equity at the end of year t-1;

D is equal to one for reversal firms in the middle 40% of abnormal working capital accruals, measured using DeFond and Park's 2001 (non-managers of earnings) model; and is equal to zero for reversal firms at the top 30% of abnormal working capital accruals (earnings managers);

D*REV'$_t$ = interaction term of variables D and REV'.

Similar to Equation 3-5, the control group-adjusted return in year t is defined as the 12-month return (with dividend) of reversal observations, minus the control group return in the reversal year. To differentiate the value relevance of reversals recognised by firms that are less likely to manage earnings and their counterparts, similar to Equations 3-1A to 3-4A, a dummy variable, D, is incorporated into the estimation model, and the definition of the dummy variable is also similar to the previous equations. The sample size to test this model is reduced to 250 observations, as the stock market price of four reversal observations are not available in Datastream.

The coefficient on REV' in Equation 3-5A represents the relationship between impairment reversals by earnings managers and abnormal return, while the sum of $\beta_1 + \beta_2$ captures the relationship for non-managers of earnings. If reversal recognition by earnings managers is value-relevant, then it is expected that the coefficient on REV' should be positive and significant. This study expects that the reversals recognition by non-managers of earnings provides more timely value-relevant information to investors, as, compared to earnings managers, β_2 is expected to be positive and significant. This prediction is consistent with the expectations of Equations 3-1A to 3-4A, in suggesting that non-managers of earnings recognise impairment reversal as reflected by the economic circumstances. Similar to Aboody et al. (1999) and prior studies (Easton & Harris, 1991; Rees et al., 1996), this study also predicts β_3 and β_4 to be positive.

3.6 Reversal of impairment losses, earnings declines and corporate governance

As reviewed in Chapter 2, prior research on earnings management provides evidence that firms manage earnings to avoid earnings decreases and losses (Burgstahler, 1997; Burgstahler & Dichev, 1997; Degeorge et al., 1999). Moehrle (2002) finds evidence that US firms use restructuring charge reversals to avoid reporting losses. He also reports some evidence that firms record reversals to avoid earnings declines. Similarly, Duh et al. (1999) find that Taiwanese firms reverse previously recognised impairment losses to avoid earnings declines. To provide additional evidence that abnormal working capital accruals is a reliable measure in partitioning earning managers and non-managers of earnings, and that some firms record reversals opportunistically, this section presents research methods used to examine the potential link between the reversal of impairment losses and incentives to avoid earnings declines. In general, it is expected that firms which are classified as potential earnings

managers will manage earnings to avoid earnings declines, compared to non-managers of earnings. In addition, this section also examines the role of effective monitoring in mitigating opportunistic reporting behaviour; i.e. the influence of corporate governance in reversal reporting. Firstly, this section examines the differences in the frequency and the magnitude of pre-reversal earnings declines between reversal firms and control firms. The frequency and magnitude of the differences between earnings managers and non-managers of earnings are also examined. The next part presents the tests used to investigate whether firms record reversals to avoid earnings declines, in addition to the role of good corporate governance in reversal reporting. The regression analysis also relates the incentives to avoid earnings declines with AWCA, BACC, debt covenants and CEO change.

3.6.1 Univariate analysis: analysis of frequency and magnitude of pre-reversal earnings declines

The first step undertaken to examine the incentives of reversal firms to avoid earnings declines is the comparison analysis of the frequency and magnitude of pre-reversal earnings declines between reversal firms and control firms. Following Moehrle (2002) and Duh et al. (2009), this study defines pre-reversal earnings declines as follows:

Pre-reversal earnings declines = $NI_t - REV_t - NI_{t-1} < 0$

Where:

NI_t = net income in year t, scaled by total assets at the end of year t;

REV_t = reversal amount in year t, scaled by total assets at the end of year t;

NI_{t-1} = net income in year t-1, scaled by total assets at the end of year t.

Reversal firms recognise the reversal of impairment losses in their income statements because the performance of their non-current assets is improved, or partly improved, and hence contributes to income generation for the firms. On the other hand, the performance of impaired assets of non-reversal firms may be unchanged, or even worse, since the recognition of previous impairment. Accordingly, this study expects that the frequency and magnitude of the earnings declines of reversal firms are significantly lower than the control firms.

This study also compares the frequency and magnitude of earnings declines between earnings managers and non-managers of earnings, as measured by AWCA (defined earlier). If reversal earnings managers report the reversals opportunistically, without a corresponding improvement of non-current assets in generating income, the frequency and magnitude of pre-reversal earnings declines are expected to be significantly higher for earnings managers, compared to the frequency and magnitude of pre-reversal earnings declines for non-managers of earnings.

3.6.2 Multivariate analysis: reversal of impairment losses and incentives to avoid earnings declines

To provide further evidence that some firms reverse the impairment charges to manage earnings, this study investigates the association between the reversal of impairment loss and incentives to avoid earnings decline. The estimation models used in this multivariate analysis are based on Duh et al.'s (2009) estimation model. Duh et al. examine whether firms reverse the previously recognised impairment loss to avoid earnings declines. This study extends the

model by interacting the earnings decline variable with AWCA. The multivariate analysis is divided into two subsections. The first section examines whether the association between the reversals and incentives to avoid earnings declines is influenced by the level of AWCA. The section also examines whether good corporate governance mitigates opportunistic reporting. The second section examines whether the size of BACC affects the relationship between reversals and incentives to avoid earnings declines, in addition to the influence of corporate governance. In addition to the above, the section further investigates whether debt covenants and CEO change are associated with the reversal of BACC to avoid earnings declines.

3.6.2.1 Reversal of impairment losses, abnormal working capital accruals and incentives to avoid earnings declines

This section examines whether reversal firms record the reversal of an impairment loss to avoid earnings declines. Specifically, the aim of this section is to test whether the reversal reported to avoid earnings declines is more pronounced among reversal firms with high AWCA. The estimation model to test the hypothesis is presented as follows:

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 AWCA_t + \beta_3(NI_t - REV_t - NI_{t-1})*AWCA_t + \beta_4 SIZE_t + \beta_5 MTB_t + \beta_6 LEV_t + \beta_7 CEO_t + \varepsilon_t \quad (3\text{-}6)$$

where:

$\mathbf{REV_t}$ = reversal amount, scaled by total assets at end of year t;

$\mathbf{NI_t - REV_t - NI_{t-1}}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;

$AWCA_t$ = abnormal working capital accruals (DeFond and Park, 2001), deflated by total assets at end of year t;

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market-to-book ratio at end of year t;

LEV_t = total debts, scaled by total assets at end of year t;

CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2; and is equal to zero otherwise.

Equation 3-6 estimates whether the relationship between reversal, REV and earnings decline is systematically associated with differences in the level of AWCA. Following Duh et al. (2009), reversal of impairment loss, REV, is used as a dependent variable. Since REV is a left-truncated variable – control firms that did not reverse the impairment loss have REV = 0, while reversal firms have a positive value of less than one – this study uses Tobit regression for the analysis (Kennedy, 2003), instead of OLS regression, because the latter may produce biased estimates of parameters.

$NI_t - REV_t - NI_{t-1}$ represents pre-reversal earnings changes relative to the prior year. Positive values indicate that the firm reports an earnings increase before the reversals are considered. If reversal firms report reversals for economic reasons, β_1 will be positive, indicating that reversal firms reverse the impairment loss because the performance of non-current assets to generate income is improved, or partly improved. This study expects β_2 to be positive, indicating that firms use AWCA, as well as REV, to manage earnings. Following prior research (Moehrle, 2002; Duh et al., 2009), this study uses the interaction term $(NI_t - REV_t - NI_{t-1})$*AWCA to examine opportunistic reporting. A negative sign of the interaction term indicates that reversal firms with high AWCA report reversal to avoid earnings declines.

Because this study expects that firms with high AWCA report reversals opportunistically, it is expected the coefficient on (NI_t - REV_t - NI_{t-1})*AWCA to be negative, suggesting that reversal firms with greater incentives to manage earnings (high AWCA firms) are more likely to reverse the impairment losses to avoid earnings declines.

Following Duh et al. (2009), this study includes SIZE, MTB, LEV and CEO as control variables. Firm size, SIZE, is to control for potential effects of size. Market-to-book ratio, MTB, controls the effects of risk and growth. The leverage ratio, LEV, is included, as prior studies find that, the larger the debt ratio, the more likely are the managers to manage earnings. Prior studies also indicate that senior management is involved in determining and measuring asset write-down (Elliot & Shaw, 1988; Francis et al., 1996; Strong & Meyer, 1987). Furthermore, it is documented that changes in top management are positively associated with asset write-down (Loh & Tan, 2002; Riedl, 2004). Therefore, this study expects changes in top management to be positively associated with reversals, and the coefficient on CEO to be positive.

This study further examines the role of corporate governance in deterring opportunistic reversal reporting. Corporate governance is viewed as an important mechanism to safeguard the interests of shareholders. According to agency theory, the opportunistic behaviour of agents can be controlled through the adoption of proper monitoring mechanisms (Jensen & Meckling, 1976). Previous studies also document that good corporate governance constrains the opportunistic behaviour of managers (Klien, 2002; Peasnell, 2005; Xie, 2003; Bradbury et al., 2006). Thus, this study investigates whether effective corporate governance mitigates opportunistic reversal reporting. Specifically, this study examines whether effective corporate

governance can mitigate managers' actions from reversing the impairment loss to avoid earnings declines.

A composite measure of corporate governance is constructed as an index (CG), to examine the influence of overall corporate governance mechanisms on the association between reversals and incentives to avoid earnings declines. The governance index is calculated as follows:

$$CG = BSIZEx + ACINDx + BINDx$$

where:

BSIZEx is equal to one if the number of directors in the board is between 5 and 11; and equal to zero otherwise;
ACINDx is equal to one if the audit committee is comprised solely of independent directors, at least one of whom has financial expertise; and zero otherwise;
BINDx is equal to one if the proportion of independent non-executive directors in the board is more than 50%; and zero otherwise.

CG is the sum of indicators of the board size, audit committee independence and board independence. A high value of CG indicates a more effective corporate governance mechanism.

In this study, board size, audit committee independence and independent directors are used as an index for monitoring mechanisms. As defined in the Bursa Malaysia Listing Requirement

under Chapter 1 (updated 3 January 2012), an independent director is a director who is independent of the management and free from any business, or other, relationship which could interfere with the exercise of the independent judgment, or the ability to act in the best interests of the shareholders. Since the Malaysian Code on Corporate Governance requires firms to disclose the details of board members in the annual reports, the data on monitoring mechanisms are manually collected from the reports. In addition, the Bursa Malaysia Listing Requirement (Chapter 15) specifies that the board of directors of public companies must prepare an audit committee report in the annual report. Amongst other elements, this must include the composition of the audit committee.

To test the role of the monitoring mechanism in deterring earnings management, Equation 3-6 is expanded to include the mechanism, and the model is expressed as Equation 3-7:

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 AWCA_t + \beta_3(NI_t - REV_t - NI_{t-1})*AWCA_t + \beta_4(NI_t - REV_t - NI_{t-1})*CG_t + \beta_5 AWCA_t *CG_t + \beta_6(NI_t - REV_t - NI_{t-1})*AWCA_t *CG_t + \beta_7 CG_t + \beta_8 SIZE_t + \beta_9 MTB_t + + \beta_{10} LEV_t + \beta_{11} CEO_t + \varepsilon_t \quad (3\text{-}7)$$

Where:

REV_t = reversal amount, scaled by total assets at end of year t;

$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;

$AWCA_t$ = abnormal working capital accruals (DeFond and Park, 2001), deflated by total assets at end of year t;

CG_t = corporate governance index (see below for details of computation);

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market-to-book ratio at end of year t;

LEV_t = total debts, scaled by total assets at end of year t;

CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

In Equation 3-7, β_6 refers to the association between reversals and incentives to avoid earnings declines by high AWCA firms with good corporate governance. As explained above, corporate governance is argued to be crucial in controlling the opportunistic behaviour of managers. This study predicts β_6 to be positive. The expectations for all other variables are similar to Equation 3-6.

3.6.2.2 Reversal of impairment losses, accumulated impairment and incentives to avoid earnings declines

This section examines whether firms reverse the accumulated impairment losses to avoid earnings declines. The accumulated impairment losses refer to the beginning balance of accumulated impairment losses (BACC). The research model is as follows:

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4 SIZE_t + \beta_5 MTB_t + \beta_6 LEV_t + \beta_7 CEO_t + \varepsilon_t \quad (3\text{-}8)$$

Where:

REV_t = reversal amount, scaled by total assets at end of year t;

$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;

$BACC_t$ = beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market-to-book ratio at end of year t;

LEV_t = total debts scaled by total assets at end of year t;

CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

This model is similar to the Duh et al. (2009) estimation model. However, this study uses the beginning balance of accumulated impairment (BACC), instead of previous-year impairment, as used in Duh et al. This is because the accumulated impairment (BACC) represents available impairment at the beginning of reversal year, to be reversed during the year. Similar to previous study, the coefficient on BACC is expected to be positively associated with reversals. Firms with larger BACC are expected to reverse more in the future.

To examine the earnings management behaviour using reversals, this study examines the association between reversals and the interaction term of change in net income and BACC. This method is consistent with prior studies (Duh et al., 2009; Moehrle, 2002). If firms reverse the accumulated impairment to avoid earnings declines, the coefficient on the interaction term should be negative. That is, while firms with high BACC tend to reverse in the future, this association is more pronounced for firms with pre-reversal earnings declines. Since the control variables in this equation are identical to Equations 3-6 and 3-7, the expectations for all control variables are the same.

This study further examines the role of corporate governance in reducing the opportunistic behaviour of managers using impairment reversals. Similar to Equation 3-7, this study incorporates corporate governance (CG) in the analysis, and estimates the following regression model:

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4(NI_t - REV_t - NI_{t-1})*CG_t + \beta_5 BACC_t*CG_t + \beta_6(NI_t - REV_t - NI_{t-1})*BACC_t*CG_t + \beta_7 CG_t + \beta_8 SIZE_t + \beta_9 MTB_t + \beta_{10} LEV_t + \beta_{11} CEO_t + \varepsilon_t \quad (3\text{-}9)$$

Where:

REV_t = reversal amount, scaled by total assets at end of year t;

$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;

$BACC_t$ = beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;

CG_t = corporate governance index, calculated as the board size (one point if the number of directors is between 5 and 11, or 0 otherwise) + audit committee independence (one point if the audit committee is comprised solely of independent outside directors, at least one of whom has financial expertise, or 0 otherwise) + board independence (one point if the proportion of independent non-executive directors is more than 50%, or 0 otherwise);

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market-to-book ratio at end of year t;

LEV_t = total debts scaled by total assets at end of year t;

CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2; and equal to zero otherwise.

Similar to the expectation in Equation 3-7, the coefficient on the interaction term of NI_t - REV_t - NI_{t-1}, BACC and CG is expected to be positive, indicating that good governance mitigates the opportunistic behaviour of managers from reversing the accumulated impairment loss to avoid earnings declines.

Prior studies document that earnings management is related to debt covenants (Sweeney, 1994; DeFond & Jiambalvo, 1994). DeFond and Jiambalvo find that the violators of debt covenants, to some extent, engage in opportunistic accruals management. They report that violators accelerate earnings a year before the violation, and provide some evidence of earnings management close to their contract covenant violation. Similarly, Sweeney finds income-increasing accounting changes as the companies approach debt covenant violation point. Furthermore, high leverage is found to be associated with proximity to the violation of debt covenants (Press & Weintrop, 1990). Duh et al. (2009) and Zhang et al. (2010) also find that the reversal of impairment losses is associated with the debt-to-equity ratio. Therefore, this study predicts that firms with high leverage are more likely to reverse the accumulated impairment, to avoid earnings declines. The leverage ratio is incorporated into the estimation model, and is expressed as follows:

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4(NI_t - REV_t - NI_{t-1})*LEV_t + \beta_5 BACC_t *LEV_t + \beta_6(NI_t - REV_t - NI_{t-1})*BACC_t *LEV_t + \beta_7 SIZE_t + \beta_8 MTB_t + \beta_9 LEV_t + \beta_{10} CEO_t + \varepsilon_t \quad (3\text{-}10)$$

Where:

REV_t = reversal amount, scaled by total assets at end of year t;

NI_t - REV_t - NI_{t-1} = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;

$BACC_t$ = beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market-to-book ratio at end of year t;

LEV_t = total debts scaled by total assets at end of year t;

CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2; and equal to zero otherwise.

The coefficient on the interaction term of NI_t - REV_t - NI_{t-1}*BACC*LEV represents the association between reversal to avoid earnings declines and accumulated impairment moderated by the level of leverage ratio. If the debt covenant is a motive underlying why firms reverse accumulated impairment loss to avoid earnings declines, β_6 is expected to be negative. Since the control variables are identical to Equations 3-6 to 3-9, the expectations for the control variables are expected to be the same.

To provide additional insight in reversal reporting issue, this study further investigates whether the change in top management is associated with opportunistic reversals. Strong and Meyer (1997) find that the most important determinant of write-down decisions tends to be a change in senior management. Zhang et al. (2010) report that firms with senior management turnover reverse more long-lived asset impairments. Elliot and Shaw (1988) argue that a new management team may be recognising problems or opportunities ignored by its predecessors. Change in senior management may capture new managements' incentives to take all potential charges, attribute them to the preceding management team and improve financial

performance going forward. For the same reason, new management may use reversals to increase reported earnings, to demonstrate its ability to improve the firm's performance. Therefore, this study predicts that change in senior management is associated with firm incentives to avoid earnings declines through reversals of accumulated impairment. The estimation model is as follows:

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4(NI_t - REV_t - NI_{t-1})*CEO_t + \beta_5 BACC_t *CEO_t + \beta_6(NI_t - REV_t - NI_{t-1})*BACC_t *CEO_t + \beta_7 SIZE_t + \beta_8 MTB_t + \beta_9 LEV_t + \beta_{10} CEO_t + \varepsilon_t \quad (3\text{-}11)$$

Where:

REV_t = reversal amount, scaled by total assets at end of year t;

$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;

$BACC_t$ = beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market-to-book ratio at end of year t;

LEV_t = total debts, scaled by total assets at end of year t;

CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2; and equal to zero otherwise.

Equation 3-11 examines the impact of CEO change on the relationship between reversals, to avoid earnings declines and accumulated impairment, represented by β_6. Change in senior

management, CEO, is interacted with NI_t - REV_t - NI_{t-1} and BACC. Based on the above argument, this study expects that the reversal of accumulated impairment losses to avoid earnings declines is more likely to occur in firms which change their senior management. Thus, β_6 is expected to be negative. The expectations of all other variables are similar to previous models.

3.7 Summary

This chapter presents the method to empirically examine the research questions pertaining to reversal reporting. Data on the reversal reporting are manually collected from the annual reports, using a keyword search. This procedure yields an initial sample of 242 firm-year reversals from 2006 to 2009, in four types of non-current assets; i.e. property plant and equipment, investment properties, other investment and investment in associates. Reversal firms are matched by industry and firm size with non-reversal firms, and 182 reversal observations are successfully matched. Thus, the final sample of this study consists of 182 reversal observations and 182 control-firm observations.

All tests undertaken in this study can be divided into three stages. In the first stage, univariate comparisons between reversal firms and non-reversal firms are performed to examine the differences between both samples. In multivariate analysis, Equations 3-1 to 3-4 are developed to investigate the relationship between reversal reporting and future firm performance, measured using one-year-ahead cash flow from operations, the change in one-year-ahead cash flow from operations, the one-year-ahead operating income and the change in the one-year-ahead operating income. For market-based tests, Equation 3-5 is used to investigate the value relevance of reversal information. In general, the aim of estimating

Equations 3-1 to 3-5 is to establish whether the reversals from the full matched sample are associated with firm performance. Results for all tests in the first stage are presented in Chapter 4.

In the second stage, reversal firms are differentiated between reversal earnings managers and reversal non-managers of earnings, according to the level of abnormal working capital accruals. Reversal firms in the top 30% of abnormal working capital accruals are regarded as earnings managers, and the middle 40% as non-managers of earnings. Then, a difference in differences analysis is undertaken, whereby the relative difference between reversals earnings managers and their control firms is compared to the relative difference between reversals non-managers of earnings and their respective control firms. Equations 3-1 to 3-5 are modified to include a dummy variable that differentiates between both subsamples. Equation 3-1A estimates the relationship between reversal reporting and one-year ahead cash flow from operations moderated by the incentives to manage earnings. It is expected that reversal recognition by non-managers of earnings is positively associated with one-year-ahead cash flow from operations. This effect is expected to be significantly different than the association between one-year-ahead cash flow from operations and reversal recognition by earnings managers. Equations 3-2A to 3-4A are similar to Equation 3-1A, except for the dependent variables. Equation 3-2A examines the association between reversal recognition and one-year-ahead change in cash flow from operations, while Equation 3-3A examines the association between reversal reporting and the subsequent one-year operating income. Equation 3-4A examines the relationship between reversal and change in the future operating income. The expectations for Equations 3-2A and 3-4A are similar to Equation 3-1A. The last equation, Equation 3-5A, examines the relationship between reversals and stock market

return in both subsamples. It is expected that reversals reported by non-managers of earnings are more value-relevant, as compared to the reversals reported by earnings managers.

In the last stage, this study examines whether reversals are associated with another earnings management measure. In particular, an association between reversals and incentives to avoid earnings declines is examined. In the univariate analysis, a comparative analysis of the frequency and magnitude of pre-reversal earnings declines between reversal firms and control firms is undertaken. A similar comparison is also performed between earnings managers and non-managers of earnings, as defined in Chapter 3. It is expected that the frequency and magnitude of pre-reversal earnings declines are significantly larger for earnings managers, compared to the non-managers of earnings.

In multivariate analysis, Equations 3-6 to 3-11 are developed to estimate the relationship between reversal reporting and incentives to avoid earnings declines. The regression analysis is tested using Tobit regression, as the test includes control firms which did not reverse the previously recognised impairment losses. In Equation 3-6, AWCA is interacted with the earnings declines variable, to establish whether the relationship between reversals and incentives to avoid earnings declines varies with the level of AWCA. As high-AWCA firms are more likely to manage earnings, this study expects that such firms report reversals to avoid earnings declines. Equation 3-7 examines the influence of monitoring mechanism on the association between reversal to avoid earnings declines and AWCA. As good corporate governance mitigates opportunistic reporting, it is expected that opportunistic reversal reporting to avoid earnings declines by firms with high AWCA is moderated by effective corporate governance.

Equation 3-8 tests whether firms reverse the accumulated impairment losses to avoid earnings declines. Similar to prior studies, this study predicts that the association between reversals and accumulated impairment is more pronounced for firms with incentives to avoid earnings declines. Equation 3-9 examines the role of corporate governance in reducing the opportunistic behaviour. As good corporate monitoring enhances transparency in financial reporting, this study predicts that the opportunistic reversal reporting by high AWCA firms is moderated by effective corporate governance. This study further examines whether the leverage ratio explains the reversal reporting, to avoid earnings declines. To test the hypothesis, Equation 3-10 is estimated by incorporating the leverage ratio into the estimation model. The last research model, Equation 3-11, tests whether CEO changes influence the relationship between reversals, to avoid earnings declines and accumulated impairment. As prior studies provide evidence that CEO change is associated with opportunistic financial reporting, this study predicts that firms that have experienced CEO change are more likely to reverse the accumulated impairment to avoid earnings declines. Results for all tests in the last stage are presented in Chapter 6.

CHAPTER 4: RESEARCH FINDINGS ON REVERSAL OF IMPAIRMENT LOSSES AND FIRM PERFORMANCE

4.1 Introduction

This chapter presents the results of the data analysis based on the research methods explained in the previous chapter. Univariate and multivariate analyses are performed to empirically answer the research question: Does the reversal of impairment loss reporting in Malaysia portray the reality of economic performance, or is it associated with opportunistic earnings management behaviour? This chapter is divided into five sections. Section 4.2 describes the full sample and the magnitude of impairment loss reversals. Section 4.3 provides descriptive statistics and univariate comparisons between a matched sample and a control sample. Section 4.4 presents the results of multivariate analyses. Specifically, this section presents the results on the relationship between impairment reversal and firm performance, measured by cash flow from operations and operating income. Section 4.5 presents the results of multivariate analysis, examining the association between reversals of impairment loss and stock market returns. Section 4.6 reports the robustness check for the findings detailed in this chapter. The last section summarises the chapter.

4.2 Sample characteristics and the magnitude of impairment loss reversals

As explained in Chapter 3, the full sample of this study comprises 182 firm-year reversals from 2006-2009. The 182 firm-year reversals are associated with 118 publicly listed companies in Malaysia. Some firms reversed in more than one accounting period during 2006-2009. The reversals are related to non-current assets impairment losses recognised by

the Malaysian public companies following the mandatory adoption of FRS 136, *Impairment of Assets*. They are either one, or a combination, of the following types of non-current assets: property, plant and equipment; investment in associates; other investment; or investment property.

Table 4.1 presents the frequency and the magnitude of total impairment reversals for the full sample. (A similar table is also prepared for the initial sample of 242 reversal firms, and presented in Appendix B.) In general, the impairment reversal data are skewed to the right. Details of reversals are presented in five categories. The first category is based on the reversal amount reported in the financial statements of firms' annual reports, in millions. The second category is scaled by total assets, while the third category is scaled by the average value of specific assets. The fourth category is scaled by net income before reversal amount, and the last category is scaled by the beginning balance of accumulated impairment loss in the year of reversal. The first column refers to the number of reversal recognitions during 2006-2009. The reversals reported in 2006, 2007, 2008 and 2009 are 31, 43, 39 and 69, respectively. The frequency of reversals is slightly higher in 2009. The next column illustrates the reversal amount, in millions, of Malaysian Ringgit. The means of reversals recognised are higher in 2006 (3.91 million) and 2007 (4.38 million). They decrease in 2008 (1.77 million) and 2009 (2.81 million). However, the medians of reversal recognition during 2006-2009 demonstrate an increasing pattern (except for 2008), from 0.39 to 0.95. The next column shows the percentage of reversals per total assets of the reversal firms. The means (medians) for 2006, 2007, 2008 and 2009 are 0.56% (0.11%), 0.57% (0.14%), 0.18% (0.08) and 0.52% (0.16%), respectively. The mean increases slightly from 2006 to 2007, and drops dramatically in 2008. However, the percentage increases sharply in 2009.

Table 4.1: Frequency and Magnitude of Impairment Loss Reversal, 2006-2009

		Million MYR		% Total assets[a]		% Specific Assets[b]		% Net Income[c]		% Accumulated Impairment[d]	
	Sample	*Mean*	Median	Mean	Median	*Mean*	Median	Mean	Median	Mean[e]	Median
Panel A: Breakdown by year											
2006	31	3.91	0.39	0.56	0.11	7.19	2.03	18.67	3.13	34.14	20.86
2007	43	4.38	0.58	0.57	0.14	16.02	5.16	7.79	3.22	40.95	33.23
2008	39	1.77	0.52	0.18	0.08	7.19	2.02	3.17	1.04	37.43	29.82
2009	69	2.81	0.95	0.52	0.16	13.13	3.55	21.25	4.39	40.44	27.92
Total	*182*	*3.14*	**0.63**	**0.47**	**0.12**	**11.51**	**2.45**	**13.75**	**3.13**	**38.88**	**28.21**
Panel B: Breakdown by type of asset											
Property, plant and equipment	66	2.31	0.70	0.49	0.15	2.85	0.67	14.02	2.87	41.45	37.88
Investment in associates	19	5.10	4.06	0.72	0.45	13.50	5.37	20.13	5.93	34.50	18.42
Other investments	78	3.44	0.38	0.45	0.09	20.06	8.46	11.72	2.82	39.36	28.11
Investment properties	11	1.12	0.03	0.11	0.01	5.22	2.06	2.31	0.12	37.44	24.52
Multiple	8	5.33	2.52	0.36	0.29	7.08	1.48	31.93	8.81	26.32	19.81
Total	**182**	**3.14**	**0.63**	**0.47**	**0.12**	**11.51**	**2.45**	**13.75**	**3.13**	**38.88**	**28.21**

[a] It is calculated as reversal amount divided by total assets at the end of year.
[b] Percentage of specific assets are based on average of related assets category in the year of reversal.
[c] It is based on the net income before reversal. The calculation of mean and median for percentage of specific assets in 2007 is based on 42 reversals as specific asset of one reversal cannot be identified from the annual report. The mean and the median are based on the winsorized data at three standard deviation from the mean.
[d] The determination of % of beginning balance of accumulated impairment is based on 155 observations as 27 reversal firms combined the accumulated impairment and accumulated depreciation in one account for Property, Plant and Equipment. The percentage is calculated as reversal amount over beginning balance of accumulated impairment loss in the year of reversal.
[e] The ANOVA test shows that there is no significant difference of the impairment reversals as a percentage of accumulated impairment across the four years.

The percentage of reversals per specific asset is calculated based on the ratio of reversals amount over the average book value of the individual assets. For example, if the reversal is recognised for property, plant and equipment, the percentage refers to the amount of reversal in property, plant and equipment over the average book value of the property, plant and equipment reported during the financial year. The calculation is based on the average value for two reasons. Some companies' beginning balances of property, plant and equipment are lower than the reversal amounts; some companies dispose of a substantial amount of the assets during the accounting period. As a result, the ending balance of the net book value of the assets is lower than the reversals amount. As revealed in Table 4.1, Panel A, the reversal firms reverse the impairment loss per book value of specific assets, which are higher in 2007 and 2009, with means (medians) of 16.02% (5.16%) and 13.13% (3.55%), respectively, compared to the reversals in 2006 and 2008, with means (medians) of 7.19% (2.03%) and 7.19% (2.02%), respectively.

The next column, in Panel A of Table 4.1, presents the proportion of the reversal of impairment loss in the net incomes of reversal firms. It is calculated as the reversal amount divided by net income before reversals, which illustrates how much the reported net income has been affected by this accounting adjustment. As depicted in the table, the amount of reversals of impairment loss is large in relation to the reported income. The mean and median for the 4 year periods is 13.75% and 3.13%, respectively. The table also indicates that the average recognition of reversals decreases from 2006 (18.67%) to 2008 (3.17%), and increases dramatically in 2009 (21.25%).

The final column presents the reversal as a percentage of total accumulated impairment losses. Total accumulated impairment losses represent the total impairment loss recognised

throughout the life and use of the specific asset until the year of reversal. As such, the percentage of reversal over the total impairment captures the total available unrealised loss which has been reversed and increased the reported earnings. On average, the size of impairment loss reversal over the total accumulated impairment loss is 38.88%. This is higher than the figure documented in the study by Duh et al. (2009), 21.10%. The ratio of impairment reversal to total accumulated impairment loss is not consistent in relation to net income, as mentioned earlier, but it is consistent with the trend in Columns 1 to 3. The means (medians) are 34.14% (20.86%), 40.95% (33.23%), 37.43% (29.82%) and 40.44% (27.92%) for 2006, 2007, 2008 and 2009, respectively.

Panel B of Table 4.1 presents the frequency and magnitude of impairment loss reversals breakdown by type of fixed assets; i.e. property, plant and equipment, investment in associates, other investments, investment property and companies recognising more than one type of assets in one accounting period (i.e. multiple). As depicted in the table, the frequency of reversals is not evenly distributed across all types of non-current assets. Of 182 observations, most Malaysian public companies recognised reversals of impairment loss in property, plant and equipment (66 observations) and other investments (78 observations), compared to the reversal recognition in investment in associates (19 observations) and investment properties (11 observations). Surprisingly, the amount of impairment loss reversal, in millions, of Malaysian Ringgits, and as a percentage of total assets for investment in associates' accounts, are the highest (5.10 million and 0.72%, respectively), but they are associated with only 19 observations. As to the percentage of reversal over total specific assets, reversals in other investments represent the highest percentage (20.06%), while reversals in multiple non-current assets represent the highest (31.93%), in terms of the percentage of reversal in net income. The last column illustrates that, on average, Malaysian

public companies reverse more accumulated impairment loss recognised in property, plant and equipment (41.45%), followed by other investments (39.36%), investment properties (37.44%) and investment in associates (34.50%).

4.3 Univariate comparisons between reversal firms and control firms

This section provides findings based on a univariate comparison between reversal firms and control firms. The sample comprises 182 reversal firm-year observations and 182 control firm-year observations. The variables used in this analysis are total assets, reversal amount scaled by total assets, abnormal working capital accruals, total sales, the beginning balance of accumulated impairment loss scaled by total assets, return on equity and return on equity adjusted for reversal amount. Table 4.2 presents descriptive statistics of the reversal firms and the control firms, together with the test of differences in means and medians for all continuous variables. The table provides the mean, median, standard deviation, minimum value, maximum value, skewness and kurtosis value of the seven variables explained above, for reversal firms and control firms. As illustrated in Table 4.2, the test sample and control sample are similar in size, measured in total assets, suggesting that the matching procedure is successful. The average and median of total assets for both the test sample and the control sample are similar. The means (medians) are 20.096 (20.029) for the test sample, and 20.054 (19.985) for the control sample, while the p-value of the test of difference is 0.754 (0.640). The abnormal working capital accruals are also similar between the two groups. The average (median) of the variable is 0.0007 (-0.0009) for the test sample, and -0.0041 (0.0011) for the control sample, while the p-value of the test of difference is 0.639 (0.968), indicating that, in general, the reversal firms are not engaged in more earnings management measured by abnormal working capital accruals.

Table 4.2: Descriptive statistics of reversal firm-years and control firms, 2006-2009.

Variables	Assets	REV	AWCA	Sales	BACC[a]	ROE	ROEadj
Test sample: Firm-years with impairment loss and reversals (n=182)							
Mean	20.096	0.0037	0.0007	19.594	0.0176	0.0822	0.0733
Median	20.029	0.0012	-0.0009	19.406	0.0058	0.0866	0.0814
SD	1.2746	0.0057	0.0933	1.4535	0.0274	0.1361	0.1386
Min	17.268	0.0000	-0.2558	16.005	0.0000	-0.3481	-0.3540
Max	24.286	0.0271	0.2667	24.250	0.0981	0.5376	0.5232
Skew	0.5642	2.7461	0.2538	0.4396	2.0583	0.0911	0.1040
Kurtos	3.5439	7.8388	4.4581	3.2466	6.0890	6.4979	6.1498
Control sample :Firm-years with impairment, without reversal (n=182)							
Mean	20.054	0	-0.0041	19.301	0.0087	0.0166	0.0166
Median	19.985	0	0.0011	19.299	0.0011	0.0540	0.0540
SD	1.2628	0	0.1022	1.5934	0.0157	0.2358	0.2358
Min	17.543	0	-0.2768	9.3056	0.0000	-0.8454	-0.8454
Max	24.091	0	0.2553	23.284	0.0845	0.8743	0.8743
Skew	0.6189	.	-0.4363	-1.1461	2.1752	-1.5068	-1.5068
Kurtos	3.5941	.	4.5302	10.627	6.7934	8.5524	8.5524
Diff in means	0.0418	0.0037	0.0048	0.2930	0.0089	0.0656	0.0567
(p-value)	(0.754)	(0.000)	(0.639)	(0.068)	(0.001)	(0.001)	(0.005)
Diff in medians	0.0440	0.0012	-0.0020	0.1070	0.0047	0.0326	0.0274
(p-value)	(0.640)	(0.000)	(0.968)	(0.091)	(0.000)	(0.003)	(0.017)

The difference (diff) in means and medians between reversal firms and control firms are tested using two-tailed *t*-tests and Mann Whitney tests, respectively.

[a]The sample size is 155 reversal observations. The difference (27 observations) is not traceable, as the firms combined accumulated depreciation and accumulated impairment in one account.

All data (except for assets and sales) are winsorised at three standard deviation from the mean.

Variable definitions:

Assets = natural logarithm of total assets at end of year t;
REV= amount of impairment loss reversal, deflated by total assets at end of year t;
AWCA = actual value of abnormal working capital accruals (DeFond and Park, 2001), deflated by total assets at end of year t;
Sales = natural logarithm of total sales at end of year t;
BACC= beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;
ROE= return on equity, calculated as net income in year t divided by total equity at end of year t;
ROEadj = return on equity (adjusted), calculated as net income minus impairment reversal in year t, divided by total equity at end of year t.

Interestingly, a number of indicators demonstrate that reversal firms perform better than non-reversal firms. The average (median) total sales (measured by the natural log of total sales) generated by reversal firms and control firms are 19.594 (19.406) and 19.301 (19.299), respectively. The differences in mean and median for the variable are significant at the 10% level. In addition, reversal firms report higher return on equity than non-reversal firms. The mean (median) for reversal firms and control firms are 0.0822 (0.0866) and 0.0166 (0.0540), respectively, and the differences in mean and median are significant at the 1% level. However, the higher return on equity may result from the recognition of the higher reversal of impairment loss, which increases the reported net income, compared to non-reversal firms. As such, the reversal of impairment loss is excluded in the determination of net income, in the year of reversal. Thus, the return on equity for reversal firms reflects only the profitability of reversal firms without the reversal amount. This method is similar to the approach followed by Duh et al. (2009). They deduct the reversal amount in the calculation of earnings change. In Table 4.2, ROEadj represents return on equity before reversal. After the exclusion of the reversal, ROEadj is still significantly higher for reversal firms than non-reversal firms. The mean (median) of the ROEadj for reversal firms is 0.0733 (0.0814), and, for non-reversal firms, is 0.0166 (0.0540). The differences in mean and median are significant at the 1% and 5% levels, respectively.

Table 4.2 also demonstrates that the beginning balance of accumulated impairment loss for reversal firms is significantly larger than non-reversal firms, suggesting that there may exist a conservative reporting policy adopted by reversal firms during the previous period of recognition of initial impairment loss. The mean (median) of the beginning balance of accumulated impairment loss is 1.76% (0.58%) of total assets for reversal firms, and 0.87% (0.11%) for non-reversal firms. The mean and median differences are significant at the 1%

level. This is consistent with Duh et al. (2009), who report that the impairment loss recognised by reversal firms is higher than non-reversal firms.[14]

In summary, Table 4.2 demonstrates that reversal firms are more profitable, as measured by return on equity, and generate more sales than the firms in the same industry classification which did not reverse the impairment charges. The table also reports that both groups (reversal and non-reversal firms) have similar abnormal working capital accruals. On average, the results show that reversal firms are not associated with earnings management, to a greater extent, than non-reversal firms. This is further supported by performance measures (return on equity). Further investigation is required.

4.4 Multivariate analysis: reversal of impairment losses and future firm performance

To provide additional evidence pertaining to the results in Section 4.3, Equations 3-1 to 3-4 are estimated for 182 reversal firms, to establish if their reversals are related to future operating performance, measured using four accounting performance measures; i.e. one year-ahead cash flow from operations, one-year-ahead change in cash flow from operations, one-year-ahead operating income and one-year-ahead change in operating income. The descriptive statistics and correlation matrix of all regression variables are presented in Table 4.3.

[14] High BACC could reduce the denominator of ROE and push the ratio up for test samples relative to the control firms. Thus, BACC is added back to the denominator of ROE to control for the size of BACC. The untabulated findings indicate that the significance of the ROE difference between the test sample and the control sample is similar to those tabulated in Table 4.2.

Table 4.3: Descriptive statistics and correlation matrix for regression variables (Equations 3-1 to 3-4), n = 182.

Panel A: Descriptive statistics

Variables	Mean	Median	SD	Min	Max	Skew	Kurtos
Dependent variables							
CFO_{t+1}	0.0657	0.0535	0.0788	-0.1379	0.2736	0.2830	3.4732
ΔCFO_{t+1}	0.0040	0.0093	0.0792	-0.1879	0.1890	-0.3913	3.1741
$OPIN^*_{t+1}$	0.0807	0.0714	0.1428	-0.2911	0.4472	-0.1704	3.8012
$\Delta OPIN^*_{t+1}$	0.0065	0.0042	0.0465	-0.1084	0.1188	0.0168	3.6534
Independent variables							
REV	0.0037	0.0012	0.0057	0.0000	0.0271	2.7461	7.8388
CFO_t	0.0638	0.0575	0.0729	-0.1165	0.2509	0.4267	3.4326
ΔCFO_t	0.0154	0.0158	0.0822	-0.2039	0.2443	0.3567	4.0553
$OPIN_t$	0.0395	0.0375	0.0762	-0.1730	0.26215	-0.0290	4.6022
$\Delta OPIN_t$	0.0084	0.0082	0.0473	-0.1123	0.1272	-0.1663	3.9225
WC	0.2052	0.2035	0.1954	-0.2169	0.6191	-0.0792	2.6802
ΔWC	0.0191	0.0229	0.0939	-0.1937	0.2320	0.0089	3.4259
SIZE	19.617	19.406	1.4799	16.005	24.251	0.4136	3.1211
MTB	0.9728	0.7400	0.6965	0.1900	2.8700	1.3167	3.9299

Panel B: Correlation matrix

	REV	CFO_t	ΔCFO_t	$OPIN_t$	$\Delta OPIN_t$	WC	ΔWC	SIZE	MTB
REV	1.0000								
CFO_t	-0.112	1.0000							
	0.137								
ΔCFO_t	-0.056	0.527	1.0000						
	0.459	0.000							
$OPIN_t$	-0.207	0.542	0.037	1.0000					
	0.006	0.000	0.619						
$\Delta OPIN_t$	-0.155	0.409	-0.036	0.556	1.0000				
	0.039	0.000	0.640	0.000					
WC	-0.252	0.146	0.086	0.251	0.099	1.0000			
	0.007	0.051	0.253	0.001	0.191				
ΔWC	0.019	-0.101	-0.036	0.026	-0.102	0.395	1.0000		
	0.802	0.178	0.629	0.727	0.175	0.003			
SIZE	-0.193	0.245	-0.022	0.455	0.343	-0.088	-0.079	1.0000	
	0.009	0.001	0.774	0.060	0.005	0.242	0.292		
MTB	0.089	0.327	0.041	0.426	0.317	-0.134	-0.018	0.290	1.0000
	0.239	0.000	0.580	0.064	0.007	0.073	0.08	0.002	

All data are winsorised at three standard deviations from the mean.

Variable definitions:

CFO_{t+1} = net cash flow from operations in year t+1, divided by total assets at end of year t;

ΔCFO_{t+1} = change in net cash flow from operations from year t to year t+1, CFO_{t+1} - CFO_t, divided by total assets at end of year t;

$OPIN^*_{t+1}$ = operating income before depreciation and amortisation expenses, reversal amount and AWCA in year t+1, divided by total assets at end of year t;

$\Delta OPIN^*_{t+1}$ = change in operating income before depreciation and amortisation expenses, reversal amount and AWCA from year t to year t+1, divided by total assets at end of year t;

REV_t = reversal amount scaled by total assets at end of year t;

CFO_t = net cash flow from operations in year t, divided by total assets at end of year t;

ΔCFO_t = change in net cash flow of operations from year t-1 to year t, divided by total assets at end of year t;

$OPIN_t$ = operating income before reversals in year t, divided by total assets at end of year t;

$\Delta OPIN_t$ = change in operating income before reversals from year t-1 to year t, divided by total assets at end of year t;

WC_t = working capital in year t, divided by total assets at end of year t;

ΔWC_t = change in working capital from year t-1 to year t, divided by total assets at end of year t;

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market-to-book ratio at end of year t.

Table 4.4: Relationship between impairment loss reversals and future firm performance, n=182

$$CFO_{t+1} = \alpha + \beta_1 REV_t + \beta_2 CFO_t + \beta_3 WC + \beta_4 SIZE_t + \beta_5 MTB_t + \varepsilon_t \quad (3\text{-}1)$$

$$\Delta CFO_{t+1} = \alpha + \beta_1 REV_t + \beta_2 \Delta CFO_t + \beta_3 \Delta WC + \beta_4 SIZE_t + \beta_5 MTB_t + \varepsilon_t \quad (3\text{-}2)$$

$$OPIN^*_{t+1} = \alpha + \beta_1 REV_t + \beta_2 OPIN_t + \beta_3 SIZE_t + \beta_4 MTB_t + \varepsilon_t \quad (3\text{-}3)$$

$$\Delta OPIN^*_{t+1} = \alpha + \beta_1 REV_t + \beta_2 \Delta OPIN_t + \beta_3 SIZE_t + \beta_4 MTB_t + \varepsilon_t \quad (3\text{-}4)$$

Variable	Equation 1 Coefficient (p-value)	Equation 2 Coefficient (p-value)	Equation 3 Coefficient (p-value)	Equation 4 Coefficient (p-value)
Intercept	-0.2168 (0.015)	-0.0946 (0.151)	-0.0744 (0.621)	-0.5211 (0.069)
REV	-0.5695 (0.527)	-0.5865 (0.382)	-0.9594 (0.402)	-0.8561 (0.621)
CFO	0.3562 (0.000)			
ΔCFO		-0.6269 (0.000)		
OPIN			0.8819 (0.000)	
ΔOPIN				-0.5213 (0.000)
WC	0.0296 (0.353)			
ΔWC		0.0395 (0.383)		
SIZE	0.0128 (0.005)	0.0058 (0.091)	0.0056 (0.481)	0.0253 (0.061)
MTB	0.0050 (0.629)	-0.0042 (0.570)	0.0155 (0.265)	0.0621 (0.091)
N	182	182	182	182
R^2	0.2406	0.4448	0.3237	0.3011

Variable definitions:

CFO_{t+1} = net cash flow from operations in year t+1, divided by total assets at end of year t;
ΔCFO_{t+1} = change in net cash flow of operations from year t to year t+1, CFO_{t+1} - CFO_t, divided by total assets at end of year t;
$OPIN^*_{t+1}$ = operating income before depreciation and amortisation expenses, reversal amount and AWCA in year t+1, divided by total assets at end of year t;
$\Delta OPIN^*_{t+1}$ = change in operating income before depreciation and amortisation expenses, reversal amount and AWCA from year t to year t+1, divided by total assets at end of year t;
REV_t = reversal amount scaled by total assets at end of year t;
CFO_t = net cash flow from operations in year t, divided by total assets at end of year t;
ΔCFO_t = change in net cash flow from operations from year t-1 to year t, $CFO_t - CFO_{t-1}$, divided by total assets at end of year t;
$OPIN_t$ = operating income before reversals in year t;
$\Delta OPIN_t$ = change in operating income before reversals from year t-1 to year t, divided by total assets at end of year t;
WC_t = working capital in year t, divided by total assets at end of year t;
ΔWC_t = change in working capital from year t-1 to year t, divided by total assets at end of year t;
$SIZE_t$ = log of total sales at end of year t;
MTB_t = market-to-book ratio at end of year t.

The regression results are outlined in Table 4.4. In all four separate regressions, reversal of impairment losses are insignificantly associated with future firm performance indicators, suggesting that the reversals reported by Malaysian firms do not explain future firm performance. Cash flow from operations (change in cash flow from operations) and operating income (change in operating income) in the reversal year are positively (negatively) and significantly associated with the performance in the next year. The other control variable, SIZE, is positively associated with all performance indicators in the next year (except for the result estimating Equation 3-3), indicating that larger firms tend to perform better in future.

The above findings are contradictory to the results reported by Aboody et al. (1999). One possible explanation for these contradictory results is that the revaluation (the main focus in Aboody et al. (1999) study) is reported directly on the balance sheet; thus, it provides a less attractive opportunity to manage earnings. While reversals are reported directly via income statement, reporting incentives may influence the reporting. However, Section 4.3 provides evidence that reversal firms have superior current performance relative to the control firms. These two contradictory arguments and findings require further investigation.

4.5 Multivariate analysis: reversal of impairment losses and stock market returns

Equation 3-5 estimates the value relevance of impairment reversals to investors using 178 reversal observations. The sample size is reduced, as market data relating to four observations are not available via Datastream. Table 4.5 presents descriptive statistics and a correlation matrix of regression variables, to test the value relevance of reversals.

Table 4.5: Descriptive statistics and correlation matrix for regression variables (Equation 3-5), n=182.

Panel A: Descriptive statistics

Variables	Mean	Median	SD	Min	Max	Skew	Kurtos
Dependent variable							
$AbReturn_t$[a]	0.0524	0.0178	0.6197	-1.3895	1.5129	0.2714	0.2951
Independent variables							
REV'	0.0037	0.0013	0.0059	0.0000	0.0273	2.7104	10.509
NI	0.0778	0.0844	0.1946	-0.4539	0.4835	-0.8682	4.5200
BTM	1.4255	1.2500	0.9035	0.1368	3.5714	0.9228	3.2019

Panel B: Correlation matrix

	REV'	NI	BTM
REV'	1.0000		
NI	-0.2326	1.0000	
	(0.0018)		
BTM	0.1901	0.1411	1.0000
	(0.0111)	(0.0603)	

[a]The sample size is 178 reversal observations, as the data on the share price for four reversal observations are not available in Datastream.
All data are winsorised at three standard deviations from the mean.

Variable definitions:

$AbReturn_t$ = control group-adjusted returns beginning eight months before the financial year-end, and ending four months after the financial year-end;
REV'_t = reversal amount, scaled by the market value of equity at the end of year t-1;
NI_t = net income before reversal in year t, scaled by market value of equity at the end of year t-1;
BTM_t = the book-to-market value ratio at the end of year t-1.

Table 4.6 reports the results from the estimation, and indicates a different explanation of the informativeness of reversals. Contrary to the results in Table 4.4, Table 4.6 illustrates that the impairment reversals are positively and significantly associated with contemporaneous abnormal returns, suggesting that the information provides a credible signal to investors about firm performance. As revealed in the table, the coefficient on REV' is positive, and significant at the 10% level. Thus, the reversal information reported in the annual report is perceived by investors as value-relevant in their investment decision.

The result is consistent with the findings in Aboody et al. (1999) and Chen et al. (2009). This evidence is consistent with the market attaches value to discretionary accounting choice. Consistent with expectations, net income before reversals, NI, is positively and significantly associated with abnormal returns. The other control variable, BTM, is insignificantly associated with the stock returns.

In summary, the result in Table 4.6 provides evidence that the Malaysian market prices the private information (reversals) because it captures value-relevant information. The market believes that the impaired assets are recovered, and expected to perform better in future. Thus, it illustrates that managers use their discretion to improve the ability of reported earnings, to reflect the fundamental value of the firm (Watts & Zimmerman, 1986; Holthausen, 1990). The results in univariate analysis also report that the current performance of reversal firms is superior, compared to the control group. Both results in Table 4.2 and Table 4.6 suggest that reversal firms report the reversals as a response to the economic reality. However, the result in Table 4.4 demonstrates that the reversal information does not predict the future profitability of the reversal firms. These inconsistent results require further investigation.

Table 4.6: Relationship between impairment loss reversals and stock market returns, n=178[a]

$$AbReturn_t = \gamma_0 + \gamma_1 REV'_t + \gamma_2 NI_t + \gamma_3 BTM_t + u_t \quad (3\text{-}5)$$

Variable	Predicted sign	Coefficient	t-Statistic	(p-value)
Intercept		-0.0041	0.64	(0.959)
REV'	+	2.8810	1.77	(0.079)
NI	+	0.9860	3.70	(0.001)
BTM	+	-0.0382	-1.04	(0.295)
N		178		
R^2		0.087		
F-statistic		8.66		
p-value (F-statistic)		0.000		

[a]The sample size is reduced, as the market information for four observations are not available via Datastream.

Variable definitions:

AbReturn = control group-adjusted returns beginning eight months before the financial year-end, and ending four months after the financial year-end;

REV'= reversal amount, scaled by market value of equity at the end of year t-1;
NI = net income before reversal in year t, scaled by market value of equity at the end of year t-1;
BTM = book to market value of equity at the end of year t-1.

4.6 Robustness check

4.6.1 Regression - clustered standard errors

This study also provides a robustness check for the market-based findings presented in Table 4.6. As explained in Chapter 3, the full sample of this study consists of 182 reversal firm-year observations from 2006 to 2009, associated with 118 firms. These different figures indicate that some reversal firms recognised reversals more than once during the period of this study. Multiple observations may affect the estimation results, as the observations may correlate with each other, creating the possibility of correlated residuals (Lang et al., 2006). Regression data in Table 4.6 include multiple observations. The total observations for the regression are 178, and are related to 117 firms; thus, on average, there are 1.52 observations per firms. As a sensitivity analysis, all standard errors are clustered at the firm level in performing the regression of market-based test. The result of this analysis is presented in Appendix C, and indicates consistent results with those of the primary analysis. The re-estimated result for Equation 3-5 indicates that the coefficients, significant variables and the direction of sign for each variable are the same as the primary regression results presented in Table 4.6. The reversals recognised by Malaysian public listed firms are positively and significantly associated with abnormal stock returns. This sensitivity result demonstrates that the result presented in Table 4.6 is robust in relation to the possibility of correlated residuals in the regression analysis.

4.6.2 Considering the effect of the beginning balance of accumulated impairment loss (BACC)

The descriptive statistics in Table 4.2 demonstrate that the beginning balance of accumulated impairment loss of the reversal firms is higher than the balance of the control firms. This difference may influence the result presented in Table 4.6. Thus, the variable BACC is incorporated in Equation 3-5, and the result is presented in Appendix D. As depicted in the appendix, the coefficients on REV' and NI remain positive and significant, while the coefficient on BACC is not significant. Thus, the size of accumulated impairment does not affect the main result.

4.7 Summary

This chapter presents descriptive statistics, univariate comparisons between reversal firms and control firms, and regression results estimating the relationship between reversal and future firm performance. The data used for these analyses is comprised of 182 Malaysian public companies recognising impairment reversals during the years 2006 to 2009. In general, similarly to previous studies, the magnitude of the reversal of impairment loss is large, as illustrated in the percentage of reversals in net income and the beginning balance of the accumulated impairment loss. The statistics also indicate that Malaysian public companies reverse more in other investments and property, plant and equipment. A simple test of the difference between reversal firms and control firms demonstrates that reversal firms are more profitable, as, measured by return on equity, they generate more sales and have higher accumulated impairment balance than non-reversal firms. This finding suggests that reversal

firms perform better and, on average, do not engage in earnings management to as large an extent as non-reversal (control) firms.

The analysis of the association between the impairment reversals and firm performance provides some evidence to support the view that reversals reflect the economic fundamental of the firms. In the market-based test, the present study finds that the market prices the reversal information as reflected by the positive association between reversals and contemporaneous stock returns. This finding suggests that the market believes that the reversals have incremental information content regarding the future profitability of the firm. However, in regression analysis between reversals and future profitability, measured by cash flow from operations and operating income, this study does not find evidence to support the information content hypothesis. The inconsistent findings between the market-based test and the accounting measure-based test require further analysis. As a robustness check for the market-based result, Equation 3-5 is re-estimated by clustering the standard errors at the firm level, and incorporating the BACC in the estimation model. The result shows qualitatively similar results as those reported in the primary test.

CHAPTER 5: RESEARCH FINDINGS ON THE REVERSAL OF IMPAIRMENT LOSSES, FIRM PERFORMANCE AND REPORTING INCENTIVES

5.1 Introduction

The evidence in the previous chapter indicates that the reversal firms outperform the control group in the reversal year. The chapter also provides evidence on the value relevance of reversal information. However, no association is found between reversals and future firm performance. This chapter presents the results of further analysis based on the research methods explained in Sections 3.5. Specifically, this chapter presents findings on the influences of reporting incentives in reversal reporting. Section 5.2 presents the results of univariate and multivariate analysis by distinguishing reversal firms into potential earnings managers and non-managers of earnings based on the level of abnormal working capital accruals. Section 5.3 reports the robustness check for findings in this chapter. The last section summarises the chapter.

5.2 Reversal of impairment losses, firm performance and reporting incentives

This study further examines whether reporting incentives influence reversal recognition. As explained in Chapter 3, this study uses abnormal working capital accruals (DeFond & Park, 2001) to differentiate between efficient choice and the opportunistic behaviour of impairment reversals. Reversal firms are ranked according to the level of abnormal working capital accruals, and firms in the top 30% of positive abnormal working capital accruals are regarded as potential earnings managers, while those in the middle 40% of abnormal working capital accruals are regarded as non-managers of earnings. As explained in Chapter 3, this study does

not use the impairment charges to differentiate between firms that are likely to manage earnings and those that are not. Even though the previous studies document that the size of impairment charges is associated with earnings management, the descriptive statistics of the reversal firms do not demonstrate that the impairment charges are an indication of earnings management. The next three parts of this section present findings from differences in differences analysis, followed by multivariate analysis examining the association between reversals reported by 55 potential earnings managers and 73 non-managers of earnings, and future firm performance; lastly, findings from the market-based tests are presented.

5.2.1 Difference in differences results

Table 5.1 presents the result of difference in differences tests using 55 earnings managers and 55 control firms, in addition to 73 non-managers of earnings and 73 control firms. These comparisons provide better insights into the attributes of earnings managers adopting opportunistic reversal reporting. The table provides the mean and median of difference between reversal earnings managers and their control firms, the mean and median of difference between reversal non-managers of earnings and their control firms, and a test of significance between the two differences, for nine variables. The variables are as follows: the beginning balance of accumulated impairment loss; return on equity adjusted for reversal amount; cash flow from operations in the reversal year; one-year-ahead cash flow from operations; operating income in the reversal year, adjusted operating income in the reversal year; operating income in the subsequent year; adjusted operating income in the subsequent year; and 12-month stock return.

Table 5.1: Difference in the differences analysis of reversal earnings managers, reversal non-managers of earnings and control firms, ranked by abnormal working capital accruals

Variables	Difference between reversal earnings managers and control firms (G1)		Difference between reversal non-managers of earnings and control firms (G2)		Difference in differences	p-value
	Mean (Median)	n	Mean (Median)	N		
BACC	0.0152 (0.0041)	47[a]	0.0022 (0.0017)	61[a]	0.0130 (0.0024)	0.028 (0.098)
ROEadj	0.0192 (0.0231)	55	0.0741 (0.0304)	73	-0.0549 (-0.0073)	0.176 (0.376)
CFO_t	-0.0219 (-0.0278)	55	0.0142 (0.0210)	73	-0.0361 (-0.0488)	0.059 (0.013)
CFO_{t+1}	-0.0041 (0.0167)	55	0.0222 (0.0159)	73	-0.0263 (0.0008)	0.131 (0.209)
$OPIN_t$	-0.0051 (0.0008)	55	0.0352 (0.0221)	73	-0.0391 (-0.0194)	0.071 (0.138)
$OPIN^*_t$	-0.1450 (-0.1162)	55	0.0252 (0.0220)	73	-0.1702 (0.1382)	(0.000) (0.000)
$OPIN_{t+1}$	0.0255 (0.0192)	55	0.0561 (0.0491)	73	-0.0306 (-0.0299)	0.090 (0.058)
$OPIN^*_{t+1}$	0.0504 (0.0410)	55	0.0625 (0.0668)	73	-0.0121 (-0.0258)	0.609 (0.376)
Return	0.0842 (0.1375)	53[b]	0.0179 (0.0149)	72[b]	0.0663 (0.1226)	0.548 (0.405)

The differences in mean and median differences are tested using two-tailed t-test and Mann Whitney tests, respectively.

[a]The sample size is 47 reversal earnings managers firms (61 reversal non-managers of earnings firms) and 47 control firms (61 control firms). The sample size is reduced, as 8 observations (12 observations) are not traceable, because the firms combine accumulated depreciation and accumulated impairment in one account.

[b]The sample size is 53 reversal earnings managers firms (72 reversal non-managers of earnings firms) and 53 control firms (72 control firms). The sample size is reduced because the market data for 2 observations (1 observation) are not available in Datastream.

The operating income (OPIN) with * indicates the adjustment for depreciation and AWCA.

Variable definitions:

BACC = beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;
ROEadj = return on equity (adjusted), calculated as net income minus impairment reversal in year t, divided by total equity at end of year t;
CFO_t = net cash flow from operations in year t, divided by total assets at end of year t;
CFO_{t+1} = net cash flow from operations in year t+1, divided by total assets at end of year t;
$OPIN_t$ = operating income before reversals in year t, divided by total assets at end of year t;
$OPIN_{t+1}$ = operating income before reversals in year t+1, divided by total assets at end of year t;
Return = stock returns beginning eight months before the financial year-end and ending four months after the financial year-end.

Table 5.1 presents the results of difference in differences tests of earnings managers and non-managers of earnings. As illustrated in the table, non-managers of earnings report higher cash flow from operations, CFO, and operating income, OPIN, in the reversal year, relative to their control group, than do the earnings managers. The mean (median) difference of CFO for non-managers of earnings relative to the control group (G2) is 0.0142 (0.0210) and -0.0219 (-0.0278), for the earnings managers group (G1). The difference in mean and median is significant at the 10% and 5% level, respectively. Interestingly, the difference in adjusted operating income in the reversal year between non-managers of earnings (G2) and earnings managers (G1) is significantly different (at the 1% level). The mean (median) difference of OPIN*t is 0.0252 (0.0220) for non-managers of the earnings group (G2), and -0.1450 (-0.1162) for the earnings managers group (G1). The table also indicates that, relative to control firms, the operating income in year t+1 of non-managers of earnings is significantly higher than the operating income of the earnings managers. The mean (median) difference of OPINt+1 is 0.0561 (0.0491) for non-managers of the earnings group (G2), and 0.0255 (0.0192) for the earnings managers group (G1). The differences in mean (-0.0306) and median (-0.0299) differences are significant at the 10% level.

Table 5.1 also illustrates that the difference in size of accumulated impairment loss between non-managers of earnings and their control group is significantly smaller than that of the earnings managers. The difference in mean (median) differences is 0.0130 (0.0024), and this difference is significant at the 5% (10%) level. Lastly, the difference in differences test for other variables, ROEadj, CFO_{t+1}, OPINt, OPIN*t+1 and Return, between both groups, do not display significant results. To sum up, the results in Table 5.1 reveal that non-managers of earnings outperform earnings managers in the reversal year and the subsequent year, indicating the recovery of their impaired operating fixed assets. Thus, reversal recognition by

non-earnings managers is more likely to have portrayed the underlying economic condition of the firms.

5.2.2 Multivariate analysis: reversal of impairment losses, future firm performance and incentives to manage earnings

This section provides further evidence of whether reversal recognition by non-managers of earnings portray the underlying economic condition of the firms. In particular, this section presents findings concerning the association between reversal recognition by reversal non-managers of earnings and the future profitability of the firms, measured via cash flow from operations, the change in cash flow from operations, operating income and the change in operating income. Similarly to the sample used in the difference in differences test in Section 5.2.1, the sample size for the estimations is 128 reversal observations; 55 observations of reversal earnings managers; and 73 observations of non-managers of earnings. The control firms are not included in the sample test, as these firms did not reverse the impairment charges.

5.2.2.1 Future cash flow from operations

This section examines the association between reversals reported by earnings managers and non-managers of earnings, and future firm performance, measured using cash flow from operations. Equation 3-1A (Equation 3-2A) hypothesises that the reversal of impairment loss recognised by non-managers of earnings is positively related to the one year-ahead cash flow from operations (change in cash flow from operations). Table 5.2 reports the results of the estimation from Equation 3-1A and Equation 3-2A. Panel A (Panel B) of Table 5.2 presents

the regression summary statistics, which relate reversals and one-year-ahead cash flow from operations (change in cash flow from operations). In Panel A, the coefficient on reversals, REV, is negative, and significant at the 1% level. This result indicates that, the higher the impairment loss being reversed by earnings managers, the lower the future cash flows, suggesting that reversals recognition by earnings managers does not reflect asset value changes, and, to some extent, is opportunistic. This finding is consistent with Duh et al. (2009) and Chen et al. (2009). In contrast, the sum of $\beta_1 + \beta_2$ is significantly positive at the 1% level, suggesting that reversal recognition by non-managers of earnings predicts future cash flows. The higher the recognition of reversal by non-managers of earnings, the higher the future cash flows.

In addition, the coefficient on D*REV, β_2, is positive, and significant at the 1% level, indicating that the reversals reported by non-managers of earnings have a significantly different impact on future performance than the reversal reported by earnings managers. This finding provides strong evidence that the reversal reporting by reversal non-managers of earnings is an efficient choice of accruals recognition.

Panel A also indicates that, as expected, the cash flow from operations in the reversal year is significantly and positively associated with future cash flows (significant at the 1% level). The other regressor, SIZE, measured as total sales, is also positively and significantly related with future cash flow from operations, while WC and MTB are insignificantly associated with future performance.

Table 5.2: Relationship between impairment loss reversals and future CFO, moderated by incentives to manage earnings using abnormal working capital accruals

Panel A: Dependent variable is future cash flow from operations

$CFO_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 CFO_t + \beta_4 WC_t + \beta_5 SIZE_t + \beta_6 MTB_t + \varepsilon_t$ *(3-1A)*

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.2275	-2.61	0.010
D	?	-0.0181	-1.35	0.178
REV	?	-1.2406	-4.00	0.000
D*REV	+	1.5664	2.81	0.005
CFO_t	+	0.3565	3.59	0.000
WC	?	0.0401	1.32	0.188
SIZE	?	0.0137	3.07	0.002
MTB		0.0074	0.89	0.376
N		128		
R^2		0.2626		
F-statistic		10.54		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		0.3258		0.006

Panel B: Dependent variable is change in future cash flow from operations

$\Delta CFO_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 \Delta CFO_t + \beta_4 \Delta WC_t + \beta_5 SIZE_t + \beta_6 MTB_t + \varepsilon_t$ *(3-2A)*

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.1096	-1.58	0.116
D	?	-0.0158	-1.27	0.206
REV	?	-1.1170	-3.22	0.002
D*REV	+	1.5459	2.89	0.004
ΔCFO_t	+	-0.6709	-9.53	0.000
ΔWC	?	0.0406	0.91	0.367
SIZE	?	0.0070	1.90	0.060
MTB	?	-0.1096	-1.58	0.116
N		128		
R^2		0.4684		
F-statistic		12.26		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		0.4289		0.008

Variable definitions:

CFO_{t+1}= net cash flow from operations in year t+1, divided by total assets at end of year t;

ΔCFO_{t+1}= change in net cash flow from operations from year t to year t+1, divided by total assets at end of year t;

D is equal to one for reversal firms in the middle 40% of abnormal working capital accruals measured using DeFond and Park's 2001 (non-managers of earnings) model; and is equal to zero for reversal firms in the top 30% of abnormal working capital accruals (earnings managers);

REV= reversal amount scaled by total assets at end of year t;

CFO_t = net cash flow from operations in year t, divided by total assets at end of year t;

ΔCFO_t = change in net cash flow from operations from year t-1 to year t, divided by total assets at end of year t;

WC = working capital in year t, divided by total assets at end of year t;

ΔWC = change of working capital from year t-1 to year t, divided by total assets at end of year t;

SIZE = log of total sales at end of year t;

MTB = market-to-book ratio at end of year t.

Panel B of Table 5.2 provides regression results of the change in future cash flow from operations on reversals. Consistent with Panel A, reversal recognition by earnings managers, REV, is negatively associated with future changes in cash flows. β_1 is negative and significant at the 1% level, suggesting that the reversal recognition by earnings managers does not reflect assets value changes, and, to some extent, is opportunistic.

Conversely, the sum of $\beta_1 + \beta_2$ is significantly positive at the 1% level, indicating that the recovery of fixed asset impairment in reversal non-managers of earnings firms generates positive increments in cash flow from operations one year ahead. Furthermore, the coefficient on D*REV, β_2, is also significantly positive. This finding indicates that the effect of reversals by non-managers of earnings on the future increase in cash flow is significantly different from earnings managers. While earnings managers recognise reversals opportunistically, non-managers of earnings choose to report the reversal based on the recoverable amount, as reflected by the economic conditions. Regarding the control variables, changes in cash flows in the reversal year (ΔCFO) are significantly and negatively associated with future changes in cash flows (at the 1% level), while SIZE is positively associated with change in future cash flow from operations. Change in working capital and MTB display insignificant associations.

5.2.2.2 Future operating income

The third measure of future profitability is net operating income, calculated as the net income reported in the income statement before depreciation and amortisation, reversal of impairment loss and abnormal working capital accruals (DeFond & Park, 2001). Similarly to Equation 3-1A and Equation 3-2A, Equations 3-3A and 3-4A estimate that the reversal of an

impairment loss by non-managers of earnings is positively associated with the one-year-ahead operating income.

Table 5.3 presents the results of the estimation. Consistent with Table 5.2, the coefficient on reversal, REV, in Panel A (Panel B) is negative and significant at the 1% (10%) level, indicating that earnings managers recognise reversals opportunistically. This result demonstrates that future operating income is reducing when the reversals recognised by earnings managers are increasing.

Table 5.3 also provides evidence that the reversals recorded by non-managers of earnings explain future profitability measured as net operating income. The sum of $\beta_1 + \beta_2$ in Panel A (Panel B) is positive and significant at the 5% (10%) level. As predicted, the coefficient on the interaction between REV and dummy variables (D=1 for non-managers of earnings), β_2, in both panels, are significantly positive. This suggests that the effect of reversals reported by non-managers of earnings on future operating income is significantly in the opposite direction, compared to the earnings managers. These findings corroborate those detailed in Table 5.2, indicating that reversal firms with lower abnormal working capital accruals report reversal recognition, as stipulated under FRS 136, *Impairment of Assets*.

Regarding the control variables, as predicted, the operating income in Panel A and the change in operating income in Panel B, in the reversal year, are significantly associated with subsequent one-year operating income and the change in future operating income, respectively. The other regressors, SIZE and MTB, in Panel A and Panel B, are not significantly related to one-year-ahead operating income.

Table 5.3: Relationship between impairment loss reversals and future operating income, moderated by incentives to manage earnings using abnormal working capital accruals

Panel A: Dependent variable is future operating income

$$OPIN^*_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D^*REV_t + \beta_3 OPIN_t + \beta_4 SIZE_t + \beta_5 MTB_t + \varepsilon_t \quad (3\text{-}3A)$$

Variable	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.1034	-0.70	0.485
D	?	-0.0497	-1.70	0.098
REV	?	-3.0601	-3.54	0.001
D*REV	+	3.9774	2.61	0.010
$OPIN_t$	+	0.9065	5.37	0.000
SIZE	?	0.0083	1.07	0.287
MTB	?	0.0164	1.22	0.224
N		128		
R^2		0.3490		
F-statistic		30.21		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		0.9173		0.010

Panel B: Dependent variable is change in future operating income

$$\Delta OPIN^*_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D^*REV_t + \beta_3 \Delta OPIN_t + \beta_4 SIZE_t + \beta_5 MTB_t + \varepsilon_t \quad (3\text{-}4A)$$

Variable	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.2548	-1.55	0.124
D	?	-0.1352	-2.02	0.045
REV	?	-6.5221	-1.93	0.055
D*REV	+	7.1281	1.92	0.057
$\Delta OPIN_t$	+	-0.6582	-4.01	0.000
SIZE	?	0.0233	1.71	0.090
MTB	?	0.0415	2.59	0.010
N		128		
R^2		0.3021		
F-statistic		30.21		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		0.6060		0.064

Variable definitions:

$OPIN^*_{t+1}$= operating income before depreciation and amortisation expenses, reversal amount and AWCA in year t+1, divided by total assets at end of year t;

$\Delta OPIN^*_{t+1}$= change in operating income before depreciation and amortisation expenses, reversal amount and AWCA from year t to year t+1, divided by total assets at end of year t;

D is equal to one for reversal firms in the middle 40% of abnormal working capital accruals measured using DeFond and Park's 2001 (non-managers of earnings) model; and equal to zero for reversal firms in the top 30% of abnormal working capital accruals (earnings managers);

REV= reversal amount, scaled by total assets at end of year t;

$OPIN_t$= operating income before reversal in year t, divided by total assets at end of year t;

$\Delta OPIN_t$= change in operating income before reversal from year t-1 to year t, divided by total assets at end of year t;

SIZE= log of total sales at end of year t;

MTB= market-to-book ratio at end of year t.

To sum up, the association between the recognition of reversal gains and future profitability measured as one-year-ahead cash flow from operations and operating income is conditional on the level of abnormal accruals, measured using DeFond and Park's model. Non-managers of earnings report reversals which explain future profitability, which is in contrast to the reversals of impairment recognised by earnings managers. Thus, the findings are consistent with the findings presented in Table 5.2, in terms of suggesting that reversal firms which are less likely to manage earnings report reversals in their financial statements that predict the future profitability of the firms. Thus, the findings provide additional evidence that the reversal information provided by non-managers of earnings reflects the underlying economic condition.

In this study, reversal firms with extreme abnormal working capital accruals are regarded as earning managers. Abnormal working capital accruals are earnings management measures which attempt to capture the amount of working capital accruals that are unlikely to be sustained, and therefore are expected to reverse against future earnings. Thus, the income-increasing effect of the abnormal accruals is later offset by the income-decreasing effect of the reversal. The results in Tables 5.2 and 5.3 reveal that the REV of earnings managers is negatively associated with future performance. That is, the higher the REV, the lower the future performance. Because abnormal accruals in the reversal year reverse in the subsequent year, and consequently reduce the reported earnings, the relationship between abnormal accruals in the reversal year and future performance is negative. If firms use abnormal working capital accruals to increase earnings, they may also use reversals which are also income-increasing accruals. Therefore, the negative relationship between REV and future performance observed in Tables 5.2 and 5.3 is justified. In addition, the unjustified increased REV will also artificially increase the total assets of the earnings managers, and will

consequently reduce the future performance, which is scaled by the artificially increased total assets.

On the other hand, non-managers of earnings with average abnormal accruals, or the lowest in terms of absolute abnormal accruals, report the reversals because the performance of their assets is improved, and generate higher income in future. That is, the higher the REV (which means the greater the recovery to their assets), the higher the income generated from the use of the assets. Thus, the positive relationship between REV and the future performance of the non-managers of earnings is justified.

5.2.3 Multivariate analysis: reversal of impairment losses, stock market returns and incentives to manage earnings

This section reports the findings on the value relevance of reversal reporting for investors. Equation 3-5A is used to estimate the relationship between impairment reversals and contemporaneous control group-adjusted return measured for a 12-month period, beginning 8 months before the financial year end and ending 4 months after the financial year. This model hypothesises that reversal recognition by firms that are less likely to manage earnings (non-managers of earnings) is more value-relevant for investors in assessing the firm value than the reversals reported by firms with extreme abnormal working capital accruals. The regression is estimated by including the interaction term to differentiate between the value relevance of reversals reported by earnings managers and non-managers of earnings. The sample to test this estimation comprises 53 reversal earnings managers and 72 reversal non-managers of earnings.[15]

[15] The sample selection for the estimation of Equation 3-5A is explained detail in Chapter 3.

Table 5.4: Abnormal stock returns, reversal of impairment losses and incentives to manage earnings using abnormal working capital accruals

$$AbReturn_t = \gamma_0 + D + \gamma_1 REV'_t + \gamma_2 D*REV'_t + \gamma_3 NI_t + \gamma_4 BTM_t + u_t \quad (3\text{-}5A)$$

Variables	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		0.1929	1.54	0.126
D	?	-0.3438	-2.68	0.008
REV'	+	-0.6693	-0.30	0.763
D*REV'	+	11.042	4.04	0.000
NI	+	1.3999	4.13	0.000
BTM	+	-0.0604	-1.69	0.101
R^2		0.1796		
F-statistic		7.93		
p-value (F-statistic)		0.000		
N		250		
$\beta_1 + \beta_2$		10.372		0.000

Variable definitions:

$AbReturn_t$ = control group-adjusted returns beginning eight months before the financial year-end and ending four months after the financial year-end;
REV'_t= reversal amount, scaled by market value of equity at the end of year t-1;
NI_t = net income before reversal in year t, scaled by market value of equity at the end of year t-1;
BTM_t = book-to-market value of equity at the end of year t-1;
D is equals to one for reversal firms in the middle 40% of abnormal working capital accruals, measured using DeFond and Park's 2001 (non-managers of earnings) model; and equal to zero for reversal firms in the top 30% of abnormal working capital accruals (earnings managers);
D*REV' = interaction term of variables D and REV'.

Table 5.4 presents the results from the estimation of Equation 3-5A. As illustrated in the table, reversals reported by earnings managers are insignificantly associated with abnormal return, indicating that the reversal of impairment by earnings managers is irrelevant in stock valuation: the coefficient on REV' is negative but insignificant. As predicted, the coefficient on D*REV' is positive and significant at the 1% level. This result suggests that, compared to earnings managers, the reversals reported by non-managers of earnings have a stronger association with abnormal returns. In other words, reversals recognised by non-managers of earnings are more value-relevant to investors, compared to reversal information provided by earnings managers. Furthermore, the sum of the coefficients of REV' and D*REV' is significantly positive, indicating that the reversal information provided by non-managers of earnings is value-relevant to investors. As predicted, the coefficient on NI is significantly positive, indicating that net income before reversal is value-relevant in stock valuation. The other regressor, BTM, is insignificantly associated with stock return.

To sum up, the result in Table 5.4 indicates that the association between reversals and stock returns is stronger for non-managers of earnings, which supports the hypothesis that reversals reported by firms with less incentives to manage earnings are informative. The market perceives that the reversal information is reliable, and signals the future performance of the firms. Thus, this finding provides further evidence to support the view that reversal firms with less incentive to manage earnings report the recovery of impaired non-current assets as a result of their improved economic circumstances.

5.3 Robustness checks

5.3.1 Regression - clustered standard errors

This study also assesses the sensitivity of the regression results presented in this chapter. Similarly to the robustness check in Chapter 4, one potential concern with the analysis is the multiple observations in the sample firms. To assess the potential of residuals autocorrelation, the regressions of Equations 3-1A to 3-5A are re-estimated by clustering the standard errors at the firm level. The results of this sensitivity test are reported in Appendices E to I. Qualitatively, the results of the sensitivity test for Equations 3-1A and 3-2A are similar to those reported in Table 5.2. The explanatory power of both models and the coefficients of all variables are similar to the primary results. REV is still negatively associated with one-year-ahead cash flow from operations, while the interaction term, D*REV, is still positively associated with future cash flows for both models. Thus, the results in Table 5.2 hold, and are robust in relation to the multiple observations in the sample firms.

The result of the sensitivity test for Equations 3-3A to 3-5A are reported in Appendices G to I. Qualitatively, the results are unchanged. The explanatory power of the model and the coefficients of all variables are similar to the primary results. For Equations 3-3A and 3-4A, REV is still negatively associated with one-year-ahead operating income, and the interaction term, D*REV, is still positively associated with future operating income. Interestingly, for Equation 3-3A, the significant level (p-value) of the relationship between D*REV and future operating income increases from 5% to 1% (0.010 to 0.008). Thus, the result in Table 5.3 is robust in relation to the multiple observations in the sample firms. Similarly, for Equation 3-5A, the result holds after clustering the standard errors at the firm level. Overall, all the

results from the estimations of Equations 3-1A to 3-5A are robust in relation to the multiple observations in the reversals sample.

5.3.2 Considering the effect of the beginning balance of accumulated impairment loss (BACC)

Equations 3-1A to 3-5A are constructed without considering the effects of previous impairment recognition. Differences in differences analysis demonstrates that the relative beginning balance of accumulated impairment losses is higher among reversal earnings managers' firms. This study conducts additional tests regarding the relationship between impairment reversals and future performance by controlling the effect of the beginning balance of accumulated impairment losses, BACC. The number of observations in the sample is reduced to 108 (107 for Equation 3-5A), as the amounts of the beginning balance of accumulated impairment losses in relation to 20 reversals are not available in the annual reports. The result is presented in Appendix J.

As demonstrated in Appendix J, BACC does not affect the relationship between reversals and future performance. The size of the beginning balance of accumulated impairment losses does not explain future performance either. The coefficients on reversals, REV, in relation to four operating performance measures, are significantly negative. Similar to the main results, the coefficients on D*REV are positive and significant. The results in relation to all other variables, CFO, ΔCFO, OPIN, ΔOPIN, SIZE and MTB, are unchanged.

5.3.3 Alternative definition for non-managers of earnings

In this chapter, the first measure to differentiate between reversal firms that are likely to manage earnings and those that are not is abnormal working capital accruals. All reversal firms in the top 30% of AWCA are regarded as potential earnings managers, and those in the middle 40% of AWCA as non-managers of earnings. As an alternative definition/measure for non-managers of earnings, all reversal firms in the bottom 30% of AWCA are regarded as potential non-managers of earnings. The reason underlying this measure is that the firms in the bottom 30% of AWCA are reversal firms that are managing earnings downward, while reversal recognition is an accounting recognition that increases earnings. Thus, reversal recognition is not related to the earnings management used to reduce earnings.

The difference in the differences test between reversal earnings managers, reversal non-managers of earnings and their respective control firms is repeated by redefining the non-managers of earnings as those reversal firms in the bottom 30% of AWCA. The sample size is reduced to 110 (94 for BACC, and 106 for AbReturn). The results of the test are presented in Appendix K. Qualitatively, the comparison between earnings managers and non-managers of earnings shows similar results, where non-managers of earnings outperform the earnings managers. The results show that, relative to control firms, the adjusted ROE and current CFO of non-managers of earnings are higher than those reported by earnings managers. However, as compared to the primary measure of non-managers of earnings, BACC and OPIN do demonstrate significant differences between both subsamples. Regressions of Equations 3-1A to 3-5A are also repeated using the alternative measure for non-managers of earnings, and the results are reported in Appendices L to N. The results are qualitatively similar to those reported using the primary measure for non-managers of earnings. In summary, the

combination of results from the main test and robustness test suggests that the reversal firms with extreme abnormal working capital accruals are more likely to report the reversals opportunistically, and that the others report the reversals that reflect the underlying economic transactions.

5.4 Summary

This chapter provided additional findings to answer the research question: Does the reversal of impairment loss reporting in Malaysia portray the reality of economic performance, or is it associated with opportunistic earnings management behaviour?

In Chapter 4, the univariate and multivariate analyses were performed using the full matched sample and the control sample. In univariate analysis, the results demonstrate that reversal firms outperform the control group. In this chapter, after separating reversal firms into two subsamples (i.e. earnings managers and non-managers of earnings, defined based on the level of abnormal working capital accruals), the difference in differences analysis illustrates that, relative to the control group, non-managers of earnings perform much better, and generate higher operating cash flows and operating income compared to reversal earnings managers.

In multivariate analysis, the results in Chapter 4 reveal that, in general, the reversals are priced by the Malaysian market, but no association is found between reversals and future firm performance. To explore this inconsistency, all models in Chapter 4 are re-estimated by differentiating the reversals reported by earnings managers and non-managers of earnings. Based on those estimations, this chapter presents interesting findings to answer the research question.

Equations 3-1A to 3-4A, which predict the relationship between reversal and future performance, provide evidence that reversal recognition by firms without incentives to manage earnings upward (as indicated by lower absolute value of abnormal working capital accruals) is significantly and positively associated with future profitability, measured by one-year-ahead cash flow from operations, one-year ahead change in cash flow from operations, one-year-ahead operating income and one-year-ahead change in operating income. This result provides strong evidence that reversal recognition by reversal non-managers of earnings reflects changes in asset value that are realised in the subsequent financial year. In contrast, reversal recognition by firms with higher abnormal working capital accruals is significantly and negatively associated with future performance, indicating that the accrual reporting is, to some extent, opportunistic.

In the market-based test, Equation 3-5A estimates the relationship between reversals and 12-month stock returns, where reversals, REV, interact with the dummy variable to differentiate between true reporting and opportunistic reporting. The regression result provides further supporting evidence. In particular, the finding demonstrates that the reversals reported by earnings managers are not value-relevant. In contrast, the reversals reported by non-managers of earnings are positively associated with stock returns, and this association is stronger compared to the association for earnings managers. This finding corroborates those findings in accounting performance tests, suggesting that firms have lesser tendency to manage earnings report reversals as stipulated under FRS 136.

Before the final section, the robustness tests are also performed for all results presented in this chapter, and the results are qualitatively unchanged.

CHAPTER 6: RESEARCH FINDINGS ON THE REVERSAL OF IMPAIRMENT LOSSES, EARNINGS DECLINES AND CORPORATE GOVERNANCE

6.1 Introduction

Chapters 4 and 5 present findings from analysing the associations between reversals, firm performance and incentives to manage earnings. Chapter 4 provides evidence that, in general, the reversals reported by Malaysian firms reflect the economic reality of the firms. In further analysis, detailed in Chapter 5, this study finds that the reporting incentives influence the association between reversals and firm performance. The reversals reported by firms with relatively low abnormal working capital accruals are associated with firm performance. In contrast, the association between reversals reported by firms with high abnormal working capital accruals and future firm performance is negative, and no association is found in market-based tests.

To provide further evidence that the level of abnormal working capital accruals influences the reversals reporting, this section presents findings regarding the association between reversals, abnormal working capital accruals and another earnings management indicator; i.e. incentives to avoid earnings declines. This chapter also provides evidence related to the influence of corporate governance on reversal reporting. The data analyses are based on the research method explained in Section 3.6. Section 6.2 presents the descriptive statistics and univariate analysis. Section 6.3 illustrates and discusses the findings from the regression analysis. The last section summarises the chapter.

6.2 Univariate analysis: frequency and magnitude analysis of pre-reversal earnings declines

As explained in Chapter 3, this study examines whether reversals are associated with other earnings management indicators; i.e. incentives to avoid earnings declines. This chapter presents empirical evidence regarding the association between reversals and incentives to avoid earnings declines. The relationship between reversals to avoid earnings declines and AWCA is also examined. The first step is to analyse the frequency and magnitude of pre-reversal earnings declines.

The results of the univariate analysis of pre-reversal earnings declines reported by reversal firms and control firms appear in Table 6.1. As explained in Chapter 3, pre-reversal earnings declines occur when NI_t - REV - NI_{t-1} is less than zero. Panel A presents the frequency of pre-reversal earnings declines of reversal firms and control firms. Table 6.1, Panel A, illustrates that 63 (34.6%) reversal observations report pre-reversal earnings declines, and 78 (42.9%) non-reversal observations report the declines. However, the difference is not significant.

Panel B of Table 6.1 presents the magnitude analysis of pre-reversal earnings declines between reversal firms and control firms. NI_t-REV-NI_{t-1} refers to the earnings change relative to the prior year. The difference in NI_t-REV-NI_{t-1} between reversal firms and control firms indicates which group performs better in the reversal year. NI_t-REV-$NI_{t-1} < 0$ is the earnings declines measure. The comparison is made to establish which group reports greater earnings declines. Both measures are constructed to examine the performance of both groups (reversal firms and control firms) without reversals.

Table 6.1: Descriptive statistics: Reversal firms and pre-reversal earnings declines

	Reversal firms		Control firms		p-value
Panel A:Frequency analysis of earnings declines					
	Number	%	Number	%	Diff in proportion
Number of firm-years examined	182	100.0	182	100.0	
Numbers and percentage of firm-years in which a pre-reversal earnings decline occurs	63	34.6	78	42.9	0.12
Number and percentage of firm-years with a post-reversal earnings decline	59	32.4	NA	NA	
Panel B:Magnitude of earnings declines					
	Mean (Median)		Mean (Median)		Diff in mean (Diff in median)
NI_t-REV-NI_{t-1}	0.0148 (0.0128)		-0.0027 (0.0052)		0.011 (0.024)
NI_t-REV-$NI_{t-1} < 0$	-0.0396 (-0.0258)		-0.0564 (-0.0432)		0.047 (0.075)

Differences (diff) in proportions, means and medians are tested using a two-tailed proportion test, a t-test and a Mann Whitney test, respectively.

As illustrated in the table, pre-reversal earnings changes relative to the prior year, NI_t-REV-NI_{t-1}, of the reversal firms are significantly higher than the earnings change of the control firms. The mean (median) of the pre-reversal earnings changes for reversal firms is 0.0148 (0.0128), and -0.0027 (0.0052) for the control firms. Both differences in means and medians are significant at the 5% level. Furthermore, pre-reversal earnings declines, NI_t-REV-NI_{t-1} < 0, reported by the reversal firms, are significantly smaller than reported by the control firms. The mean (median) of pre-reversals earnings declines is -0.0396 (-0.0258) for reversal firms, and -0.0564 (-0.0432) for control firms. The differences in mean and median are significant at the 5% and 10% levels, respectively.

Overall, the frequency and magnitude analysis in Table 6.1 provides evidence that reversal firms perform better than the control firms. The magnitude of pre-reversal earnings change and pre-reversal net income are significantly larger for reversal firms, while their magnitude of pre-reversal earnings declines is significantly smaller than the control firms.

These findings indicate that reversal firms report the reversals for economic reasons. The reported income and income change before reversals are higher for reversal firms, indicating that reversal firms outperform the control firms. The positive income and income changes indicate that the value of operating assets has increased from the previous impairment. In contrast, the control firms continue to record lower income compared to reversal firms, because such recovery did not occur in their firms. The results are also consistent with the findings in Chapter 4, in terms of suggesting that Malaysian firms, in general, report the reversals to portray the reality of economic situations of the firms. In Chapter 4, it is revealed that the performance in the reversal year of reversal firms is better than that of control firms, and it is supported by positive market reaction to the reversal information. This chapter

provides additional supporting evidence that reversal firms report higher pre-reversal earnings change, compared to the control firms.

This study further investigates the difference of frequency and magnitude of earnings declines between firms that are likely to manage earnings (namely earnings managers) and their counterparts (namely non-managers of earnings), as defined and analysed in Chapter 5. The chapter provides empirical evidence that the earnings managers report the reversals opportunistically. To provide additional evidence that reversals reported by earnings managers are not realistic, this section compares the performance (earnings changes) between both subsamples. Table 6.2 presents findings regarding the frequency and magnitude analysis of pre-reversal earnings declines reported by earnings managers and non-managers of earnings. The definitions of earnings managers and non-managers of earnings are as defined in Chapter 3 (i.e. reversal earnings managers are those reversal firms in the top 30% of AWCA, while the middle 40% are non-managers of earnings).

Panel A, Table 6.2, demonstrates that a greater proportion of reversals earnings managers have pre-reversal earnings declines than those reversal non-managers of earnings. 43.7% of reversal earnings managers report pre-reversal earnings declines, and only 26% of non-managers of earnings report the declines. The difference is significant at the 5% level. This result suggests that earnings management to avoid earnings declines is a motivation for some reversal firms. The comparison of the difference in magnitude of pre-reversal earnings declines between both groups in Panel B of Table 6.2 is also significant at the 10% level. The magnitude of pre-reversal earnings declines of earnings managers (-0.0489) is significantly larger than the declines reported by non-managers of earnings (-0.0275).

Table 6.2: Reversal earnings managers[a], reversal non-managers of earnings[b] and earnings declines

	Reversal earnings managers		Reversal non-managers of earnings		p-value
Panel A: Frequency analysis of earnings declines					
	Number	%	Number	%	Diff in proportion
Number of firm-years examined	55	100.0	73	100.0	
Numbers and percentage of firm-years in which a pre-reversal earnings decline occurs	26	47.3	19	26.0	0.012
Number and percentage of firm-years with post-reversal earnings decline	24	43.7	18	24.6	0.023
Panel B: Magnitude of earnings declines					
	Mean (Median)		Mean (Median)		Diff in mean (Diff in median)
NI_t-REV-$NI_{t-1} < 0$	-0.0489 (-0.0303)		-0.0275 (-0.0185)		0.06 (0.09)

Differences (diff) in proportion, mean and median are tested using a two-tailed proportion test, a t-test and a Mann Whitney test, respectively.

[a]Reversal earnings managers are reversal firms in the top 30%, in terms of AWCA.

[b]Reversal non-managers of earnings are reversal firms in the middle 40%, in terms of AWCA.

In summary, the findings from the frequency and magnitude analysis of earnings declines between earnings managers and non-managers of earnings provide evidence that earnings managers measured using AWCA perform worse compared to non-managers of earnings. The number of firms with pre-reversal earnings decline is significantly larger for earnings managers than non-managers of earnings. The magnitude of pre-reversal earnings declines of the earnings managers is also significantly larger than non-managers of earnings. These findings show that earnings managers are more likely to use reversals to avoid earnings declines. This finding corroborates the findings in Chapter 5, that earnings managers measured based on the level of AWCA report the reversals opportunistically.

6.3 Multivariate analysis: reversal of impairment losses and incentives to avoid earnings declines

This section presents findings concerning the association between reversals and incentives to avoid earnings declines. Chapter 5 provides evidence that some reversal firms reverse the accumulated impairment loss opportunistically. These firms are firms with high positive AWCA in reversal year. This chapter links reversal with other earnings management measures, to ensure the reliability of AWCA in measuring earnings management. In addition, this test also provides additional evidence that there are some firms which reverse the reversals for economic reasons, and that others record the reversals to manage earnings. To test the relationship, Equations 3-6 to 3-11 are developed. The impact of corporate governance, accumulated impairment, leverage and CEO change on reversal reporting are examined. Table 6.3, Panel A, presents the descriptive statistics, while Panel B presents the correlation matrix of all regression variables related to Equations 3-6 to 3-11.

Table 6.3: Descriptive statistics and correlation matrix for regression variables, n=364.

Panel A: Descriptive statistics

Variables	Mean	Median	SD	Min	Max	Skew	Kurtos
Dependent variables							
REV	0.0037	0.0012	0.0057	0.0000	0.0271	2.7461	7.8388
Independent variables							
$NI_t - REV_t - NI_{t-1}$	0.0059	0.0067	0.0653	-0.1844	0.1988	-0.0867	2.3290
AWCA	-0.0011	0.0002	0.0969	-0.2660	0.2616	-0.1055	1.5585
BACC[a]	0.0196	0.0059	0.0299	0.0000	0.1066	1.9203	5.4382
CG	1.7127	2.0000	0.8223	0.0000	3.0000	0.3355	-1.0319
SIZE	19.4604	19.342	1.3951	16.372	22.545	0.1781	-0.3543
MTB	0.9680	0.6800	0.9503	0.1100	5.8900	3.1793	12.329
LEV	0.4403	0.4510	0.1835	0.0656	0.8186	0.0365	-0.6950
CEO	0.1823	0.0000	0.3866	0.0000	1.0000	1.6524	0.7345

Panel B: Correlation matrix

	$NI_t - REV_t - NI_{t-1}$	AWCA	SIZE	MTB	LEV	CEO	CG	BACC
$NI_t - REV_t - NI_{t-1}$	1.0000							
AWCA	0.0541 (0.3046)	1.0000						
SIZE	-0.0811 (0.1237)	-0.0652 (0.2161)	1.0000					
MTB	0.1034 (0.0493)	0.0521 (0.3224)	0.2450 (0.0000)	1.0000				
LEV	-0.0423 (0.4229)	0.0847 (0.1074)	0.0965 (0.0667)	0.1601 (0.0022)	1.0000			
CEO	0.0317 (0.5481)	0.0588 (0.2648)	-0.0235 (0.6564)	0.0887 (0.0919)	-0.0483 (0.3598)	1.0000		
CG	-0.0464 (0.3787)	-0.0119 (0.8214)	0.0243 (0.6445)	-0.0229 (0.6639)	0.0462 (0.3807)	0.0432 (0.4122)	1.0000	
BACC	0.2107 (0.002)	0.0930 (0.1005)	-0.1545 (0.0062)	0.0595 (0.2936)	0.0616 (0.2775)	0.1706 (0.0025)	0.0248 (0.6624)	1.0000

[a]The sample size is 155 reversal observations and 155 control firms. The difference (54 reversal observations) is not traceable, as the firms combined accumulated impairment and accumulated depreciation into one account.
All data are winsorised at three standard deviations from the mean.

Variable definitions:

REV_t = reversal amount, scaled by total assets at end of year t;

$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;

$AWCA_t$ = abnormal working capital accruals (DeFond and Park, 2001) deflated by total assets at end of year t;

$BACC_t$ = beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;

CG_t = corporate governance index calculated as the board size (one point if the number of directors is between 5 and 11, and 0 otherwise) + audit committee independence (one point if the audit committee is comprised solely of independent outside directors, at least one of whom has financial expertise, and 0 otherwise) + board independence (one point if the proportion of independent non-executive directors is more than 50%, and 0 otherwise);

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market-to-book ratio at end of year t;

LEV_t = total debts, scaled by total assets at end of year t;

CEO_t is equal to 1 if firms change their chief executive officer/managing director in year t-1 or t-2.

6.3.1 Reversal of impairment losses, abnormal working capital accruals and incentives to avoid earnings declines

This section further examines whether reversals are related to incentives, to avoid earnings declines. The analysis also examines the effects of AWCA on the relationship between reversals and earnings declines. The findings regarding the impact of effective corporate governance on the opportunistic reversal, to avoid earnings declines, are also presented. The sample size for the estimations is 182 reversal firms and 182 control firms.

6.3.1.1 Abnormal working capital accruals and incentives to avoid earnings declines

Equation 3-6 hypothesises that reversal firms with high AWCA are more likely to reverse the impairment losses to avoid earnings declines. Table 6.4 presents the Tobit regression results from the estimation of Equation 3-6. The table indicates that the coefficient on NI_t-REV_t-NI_{t-1} is positive and significant at the 1% level. This result indicates that the positive change in net income relative to the prior year is positively associated with REV, suggesting that, overall, the reversals are reported for economic reasons. The positive increase in net income demonstrates that the operating assets are improved in generating profits to the firms. Therefore, the firms reverse the accumulated impairment. This result supports the result found in Chapter 4, suggesting that, in general, the reversals are recognised, as managers respond to the changes in economics condition of the firms.

Table 6.4: Tobit regression testing the relationship between impairment loss reversal, AWCA and incentives to avoid earnings declines

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 AWCA_t + \beta_3(NI_t - REV_t - NI_{t-1})*AWCA_t + \beta_4 SIZE_t + \beta_5 MTB_t + \beta_6 LEV_t + \beta_7 CEO_t + \varepsilon_t \quad (3\text{-}6)$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0018	-0.21	0.838
$NI_t - REV_t - NI_{t-1}$	+	0.0287	3.53	0.000
AWCA	+	0.0103	1.81	0.071
$NI_t - REV_t - NI_{t-1}$ *AWCA	-	-0.1080	-4.43	0.000
SIZE	?	-0.0002	-0.39	0.689
MTB	+	0.0003	0.72	0.471
LEV	+	0.0022	0.60	0.551
CEO	+	0.0044	2.57	0.010
N		364		
Likelihood Ratio		52.33		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount, scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;
$AWCA_t$ = abnormal working capital accruals (DeFond and Park, 2001), deflated by total assets at end of year t;
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market-to-book ratio at end of year t;
LEV_t = total debts, scaled by total assets at end of year t;
CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2, and is equal to zero otherwise.

As expected, the coefficient on AWCA is positive and significant (at the 10% level). This result indicates that firms use AWCA, in addition to reversals, to manage earnings. The table also reveals that, as hypothesised, the coefficient on the interaction term, (NI_t - REV_t - NI_{t-1})*AWCA, is negative and significant (at the 1% level). This finding indicates that firms with high AWCA are more likely to report the reversals to avoid earnings declines. Of the control variables, only change in senior management, CEO, is positively associated with REV, indicating that firms that have changed their senior management are more likely to report the reversals.

The above findings are consistent with the predictions in Chapter 3. In general, this study finds that positive change in net income relative to the prior year is positively associated with reversals. This result suggests that, in general, the reversals reported portray the economic reality of the firms. Firms reverse the previously recognised impairment, as the operating assets are recovered or partly recovered. The recovery in operating assets results in the positive improvement of the operating assets in generating profits. The above findings also reveal that the reversals are related to abnormal accruals; that is, the specific accruals pertaining to the reversals of impairment losses is related to an aggregate measure of earnings management. As such, reversals may also be associated with earnings management. Reversals are positively associated with firm performance, in addition to earnings management. These results are consistent with the findings in Chapter 5, suggesting that some firms reverse the impairment for good reasons, and the others for earnings management.

The main focus of this chapter is the association between reversals and incentives to avoid earnings declines. As predicted, this study finds that firms with high AWCA are associated

with opportunistic reversals reporting to avoid earnings declines. In other words, firms that are likely to manage earnings are more likely to reverse the impairment, to avoid earnings declines. This finding corroborates the findings in Chapter 5, suggesting that firms that are more likely to be earnings managers report reversals for private benefits. Consistent with Zhang et al. (2010), this study also reports that CEO change is associated with reversals reporting. Firms that change their CEO/general managers in the one or two years prior to the reversal year are more likely to reverse the impairment losses, probably to indicate that the successor is able to improve the firm performance. This association may also highlight that CEO change is associated with earnings management. Further examination is essential.

6.3.1.2 Abnormal working capital accruals, incentives to avoid earnings declines and corporate governance

The results from estimating Equation 3-6 indicate that reversal firms with high AWCA are more likely to reverse the impairment to avoid earnings declines. Equation 3-7 further examines whether such opportunistic behaviour among managers can be constrained by effective corporate governance practices. Table 6.5 reports the Tobit regression results after incorporating the corporate governance variable. Consistent with the results in Table 6.4, the coefficient on NI_t - REV_t - NI_{t-1}*AWCA is negative and significant (at the 1% level), supporting the argument that high AWCA firms report the reversals to avoid earnings declines.

Table 6.5: Tobit regression testing the relationship between impairment loss reversal, AWCA, incentives to avoid earnings declines and corporate governance

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 AWCA_t + \beta_3(NI_t - REV_t - NI_{t-1})*AWCA_t + \beta_4(NI_t - REV_t - NI_{t-1})*CG_t + \beta_5 AWCA_t*CG_t + \beta_6(NI_t - REV_t - NI_{t-1})*AWCA_t*CG_t + \beta_7 CG_t + \beta_8 SIZE_t + \beta_9 MTB_t + + \beta_{10} LEV_t + \beta_{11} CEO_t + \varepsilon_t \quad (3\text{-}7)$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		0.0006	0.07	0.944
$NI_t - REV_t - NI_{t-1}$	+	0.0088	0.39	0.696
AWCA	+	0.0077	0.51	0.608
$NI_t - REV_t - NI_{t-1}$ *AWCA	-	-0.2629	-3.67	0.000
$NI_t - REV_t - NI_{t-1}$*CG	?	0.0070	0.58	0.561
AWCA*CG	?	0.0033	0.46	0.644
$NI_t - REV_t - NI_{t-1}$*AWCA *CG	+	0.4428	4.73	0.000
CG	+	0.0008	0.98	0.325
SIZE	?	-0.0003	-0.72	0.472
MTB	+	0.0005	1.12	0.263
LEV	+	-0.0001	-0.02	0.985
CEO	+	0.0041	2.49	0.013
N		364		
Likelihood Ratio		71.43		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;
$AWCA_t$ = abnormal working capital accruals (DeFond and Park, 2001), deflated by total assets at end of year t;
CG_t = corporate governance index calculated as the board size (one point if the number of directors is between 5 and 11, and 0 otherwise) + audit committee independence (one point if the audit committee is comprised solely of independent outside directors, at least one of whom has financial expertise, and 0 otherwise) + board independence (one point if the proportion of independent non-executive directors is more than 50%, and 0 otherwise);
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market-to-book ratio at end of year t;
LEV_t = total debts, scaled by total assets at end of year t;
CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

As expected, the coefficient on the interaction term of NI_t - REV_t - NI_{t-1}, AWCA and CG is positive and significant (at the 1% level). This result indicates that, while firms with high AWCA reverse the impairment to avoid earnings declines, such an association is weaker for firms with a strong governance mechanism. As such, consistent with the prediction, an effective corporate governance system helps in reducing opportunistic reversal recognition. Overall, the results show that effective monitoring mechanisms are crucial in deterring opportunistic reversal reporting. Again, consistent with the previous result, CEO change is positively associated with reversals.

6.3.2 Reversal of impairment losses, accumulated impairment and incentives to avoid earnings declines

As discussed in Chapter 3, this study further examines whether reversal firms use accumulated impairment to manage earnings. This section provides the findings of the analysis. The evidence of the impact of corporate governance, debt level and CEO change are also presented. The sample size to test the hypothesis is 155 reversal firms and 155 control firms, and is again tested using Tobit regression analysis.

6.3.2.1 Accumulated impairment and incentives to avoid earnings declines

This section examines the association between reversals, incentives to avoid earnings declines and BACC, to establish whether reversal firms reverse the previously recognised impairment charges to avoid earnings declines. BACC is accumulated impairment since the acquisition of the assets, and represents available impairment at the beginning of the reversal year to be reversed by firms. The size of BACC may influence the decision of managers to

recognise the reversals. Furthermore, results in Chapter 4 also show that the BACC of reversal firms is significantly larger than the BACC of the control firms. Equation 3-8 hypothesises that, while firms with a high BACC tend to reverse more than those with low BACC, this association is more pronounced for firms with pre-reversal earnings declines.

Table 6.6 presents the results of the estimation of Equation 3-8. Consistent with the results of the estimation of Equation 3-6, the coefficient on NI_t - REV_t - NI_{t-1} is again positive and significant at the 5% level. As expected, the size of accumulated impairment is positively associated with reversals, indicating that, the larger the accumulated impairment losses, the greater the impairment subsequently reversed. Consistent with Duh et al. (2009), the coefficient on the interaction term of NI_t - REV_t - NI_{t-1} and BACC is negative and significant at the 5% level. This result indicates that, while firms with larger accumulated impairment tend to reverse subsequently, this tendency is more pronounced for firms with a negative pre-reversal earnings change. This finding provides strong evidence of the use of accumulated impairment losses to avoid earnings declines through reversals. The result may also suggest that the discretion provided under FRS 136 provides managers with an opportunity to manage earnings.

Table 6.6: Tobit regression testing the relationship between impairment loss reversal, BACC and incentives to avoid earnings declines

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4 SIZE_t + \beta_5 MTB_t + \beta_6 LEV_t + \beta_7 CEO_t + \varepsilon_t \quad (3\text{-}8)$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0130	-1.33	0.183
$NI_t - REV_t - NI_{t-1}$	+	0.0360	2.59	0.010
BACC	+	0.1682	6.99	0.000
$NI_t - REV_t - NI_{t-1}$ *BACC	-	-0.1721	-2.57	0.010
SIZE	?	0.0004	0.81	0.418
MTB	+	0.0001	0.24	0.809
LEV	+	-0.0038	-0.93	0.353
CEO	+	0.0038	2.10	0.045
N		310		
Likelihood Ratio		72.21		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount, scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;
$BACC_t$ = beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market-to-book ratio at end of year t;
LEV_t = total debts, scaled by total assets at end of year t;
CEO_t is equals to one if the firm changes its chief executive officer/general manager in year t-1 or t-2; and equal to zero otherwise.

6.3.2.2 Accumulated impairment, incentives to avoid earnings declines and corporate governance

As corporate governance is viewed as being effective in curtailing the opportunistic behaviour of managers, this study further examines whether good corporate governance mitigates opportunistic reversal reporting, as reported in Table 6.6. The table shows that the tendency to reverse the BACC is more pronounced for firms with pre-reversal earnings declines. This section tests whether good monitoring practice could mitigate such opportunistic behaviour. Furthermore, Table 6.5 also illustrates that good governance helps to reduce the opportunistic behaviour of high AWCA firms to record the reversals in such a way as to avoid earnings declines. Therefore, Equation 3-9 is proposed to examine whether effective corporate governance constrains the reversal of BACC to avoid earnings declines.

Table 6.7 reports the Tobit regression results regarding the influence of good governance on the incentives to avoid earnings declines through the reversal of accumulated impairment. The coefficient on the interaction term, NI_t - REV_t - NI_{t-1}*BACC, is negative and significant (at the 1% level). The result confirms the finding in Table 6.6, suggesting that reversal firms reverse the accumulated impairment to avoid earnings declines. NI_t - REV_t - NI_{t-1}*CG is positively associated with REV, indicating that the positive association between positive earnings change and reversals is stronger in firms with good corporate governance. That is, firms with good corporate governance report the reversals for economic reasons. This finding indicates that corporate governance encourages true reversal reporting. The table also shows that the positive association between REV and BACC is likely to occur in firms with good governance.

Table 6.7: Tobit regression testing the relationship between impairment loss reversal, BACC, incentives to avoid earnings declines and corporate governance

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4(NI_t - REV_t - NI_{t-1})*CG_t + \beta_5 BACC_t*CG_t + \beta_6(NI_t - REV_t - NI_{t-1})*BACC_t*CG_t + \beta_7 CG_t + \beta_8 SIZE_t + \beta_9 MTB_t + \beta_{10} LEV_t + \beta_{11} CEO_t + \varepsilon_t \quad (3\text{-}9)$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0136	-1.46	0.145
$NI_t - REV_t - NI_{t-1}$	+	-0.0519	-1.58	0.115
BACC	+	-0.0325	-0.51	0.609
$NI_t - REV_t - NI_{t-1}$ *BACC	-	-1.4583	-4.50	0.000
$NI_t - REV_t - NI_{t-1}$*CG	?	0.0480	2.84	0.005
BACC*CG	?	0.0975	3.22	0.001
$NI_t - REV_t - NI_{t-1}$*BACC *CG	+	2.4241	4.05	0.000
CG	+	-0.0007	-0.82	0.412
SIZE	?	0.0005	1.04	0.297
MTB	+	0.0001	0.02	0.980
LEV	+	-0.0020	-0.52	0.604
CEO	+	0.0047	2.62	0.009
N		310		
Likelihood Ratio		97.84		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount, scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;
$BACC_t$ = beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;
CG_t = corporate governance index calculated as the board size (one point if the number of directors is between 5 and 11, and 0 otherwise) + audit committee independence (one point if the audit committee is comprised solely of independent outside directors, at least one of whom has financial expertise, and 0 otherwise) + board independence (one point if the proportion of independent non-executive directors is more than 50%, and 0 otherwise);
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market-to-book ratio at end of year t;
LEV_t = total debts, scaled by total assets at end of year t;
CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

Consistent with the results presented in Table 6.5, this study finds that the tendency of reversal firms to reverse the accumulated impairment to avoid earnings declines is moderated by corporate governance. As revealed in Table 6.7, the interaction term, NI_t - REV_t - NI_{t-1}*BACC*CG, is positively associated with REV, and the association is significant at the 1% level. This indicates that good governance plays role in curtailing earnings management using reversals. In other words, this finding suggests that, while managers reverse the accumulated impairment to avoid earnings declines, effective monitoring mechanisms will mitigate such behaviour.

Overall, the findings are consistent with prior studies suggesting that effective corporate monitoring mitigates the opportunistic behaviour of managers. This study finds that reversal firms reverse the accumulated impairment to avoid earnings declines. However, when the corporate governance mechanism is tested in the relationship, this study finds that the relationship is moderated by effective corporate governance. Again, change in senior management, CEO, is positively associated with reversals.

6.3.2.3 Accumulated impairment, incentives to avoid earnings declines and debt covenant

As explained in Chapter 3, Equation 3-10 is developed to test whether a debt covenant is a potential motive for firms to reverse the BACC. The model examines whether firms with a high leverage ratio tend to reverse the BACC to avoid earnings declines. Firms with a high leverage ratio have the tendency to increase earnings when companies approach debt covenant violation point (Sweeney, 1994).

Table 6.8: Tobit regression testing the relationship between impairment loss reversal, BACC, incentives to avoid earnings declines and debt covenant

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4(NI_t - REV_t - NI_{t-1})*LEV_t + \beta_5 BACC_t *LEV_t + \beta_6(NI_t - REV_t - NI_{t-1})*BACC_t *LEV_t + \beta_7 SIZE_t + \beta_8 MTB_t + \beta_9 LEV_t + \beta_{10} CEO_t + \varepsilon_t \quad (3\text{-}10)$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0123	-1.35	0.177
$NI_t - REV_t - NI_{t-1}$	+	0.0262	0.84	0.404
BACC	+	0.3237	4.43	0.000
$NI_t - REV_t - NI_{t-1}$ *BACC	+	4.7096	4.06	0.000
$NI_t - REV_t - NI_{t-1}$*LEV	?	0.0095	0.15	0.883
BACC*LEV	?	-0.3338	-2.36	0.019
$NI_t - REV_t - NI_{t-1}$*BACC *LEV	-	-2.4668	-4.38	0.000
SIZE	?	0.0004	0.82	0.412
MTB	-	0.0001	0.21	0.832
LEV	+	-0.0026	-0.61	0.544
CEO	+	0.0036	2.15	0.032
N		310		
Likelihood Ratio		105.85		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount, scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;
$BACC_t$ = beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market-to-book ratio at end of year t;
LEV_t = total debts, scaled by total assets at end of year t;
CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2; and equal to zero otherwise.

Table 6.8 reports the Tobit regression results analysing the impact of the leverage ratio on the relationship between reversal to avoid earnings declines and accumulated impairment. BACC and interaction term of BACC and NI_t-REV_t-NI_{t-1} are, again, positively associated with REV.

Consistent with the literature suggesting that high debt ratio is associated with earnings management (Sweeney, 1994; DeFond & Jiambalvo, 1994), this study finds that firms with high debt ratios are more likely to reverse the accumulated impairment to avoid earnings declines. As revealed in the table, the coefficient on the interaction term of NI_t - REV_t - NI_{t-1}, BACC and LEV is negative and significant at the 1% level. This result indicates that, while reversal firms reverse the accumulated impairment to avoid earnings declines, this association is more pronounced for firms with high leverage ratios. In other words, high leverage reversal firms are more likely to reverse the accumulated impairment to avoid earnings declines, perhaps because of debt covenants. That is, managers use reversal of impairment losses to increase earnings when firms approach debt-covenant constraints. In the regression results, this study again reports that the CEO is positively associated with REV. Overall, the finding from the estimation of Equation 3-10 provides evidence consistent with the proposition that firms with a high leverage ratio use earnings management to avoid violating debt-covenant constraints.

6.3.2.4 Accumulated impairment, incentives to avoid earnings declines and CEO change

The findings from the estimation of Equations 3-6 to 3-10 report that change in senior management, CEO, is consistently and positively associated with reversals. That is, firms that change their senior management are more likely to report the reversals in their financial

statements in subsequent years. This result highlights that firms that change their management one or two years prior to the reversal year are engaged in opportunistic reversal recognition. Accordingly, Equation 3-11 is estimated to examine whether firms that change their CEO or managing director before the reversal year have a tendency to reverse the BACC to avoid earnings declines. This test provides direct evidence that the recently appointed management may engage in earnings management.

The findings from the estimation of Equation 3-11 are presented in Table 6.9. The table presents the Tobit regression results of estimating the relationship between reversals to avoid earnings declines, BACC and CEO change. As revealed in the table, change in net income relative to the prior year, NI_t - REV_t - NI_{t-1}, is positively associated with REV, suggesting that, in general, REV is reported to reflect the current economic condition of the firms. This finding is similar to those in Tables 6.4 and 6.9. Similarly, consistent with the results in Tables 6.6 and 6.8, BACC is positively related to REV. As depicted in Table 6.9, the coefficient on the interaction term of BACC and CEO is positive and significant (at the 1% level). This result indicates that firms which had changed their management one or two years previously tend to reverse BACC. Thus, while firms which had previously recognised the impairment charges tend to reverse subsequently, this tendency is more pronounced for firms which had recently change their CEO or managing director.

Table 6.9: Tobit regression testing the relationship between impairment loss reversal, BACC, incentives to avoid earnings declines and CEO change

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4(NI_t - REV_t - NI_{t-1})*CEO_t + \beta_5 BACC_t *CEO_t + \beta_6(NI_t - REV_t - NI_{t-1})*BACC_t *CEO_t + \beta_7 SIZE_t + \beta_8 MTB_t + \beta_9 LEV_t + \beta_{10} CEO_t + \varepsilon_t \quad (3\text{-}11)$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0105	-1.11	0.268
$NI_t - REV_t - NI_{t-1}$	+	0.0314	2.02	0.044
BACC	+	0.1477	5.83	0.000
$NI_t - REV_t - NI_{t-1}$ *BACC	?	0.0859	0.34	0.737
$NI_t - REV_t - NI_{t-1}$*CEO	?	0.0250	0.82	0.415
BACC*CEO	?	0.1880	2.81	0.005
$NI_t - REV_t - NI_{t-1}$*BACC *CEO	-	-1.7273	-2.95	0.003
SIZE	?	0.0003	0.61	0.545
MTB	-	0.0001	0.11	0.914
LEV	+	-0.0033	-0.84	0.401
CEO	+	0.0017	0.79	0.430
N		310		
Likelihood Ratio		83.20		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount, scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t, scaled by total assets at end of year t;
$BACC_t$ = beginning balance of accumulated impairment loss in year t, deflated by total assets at end of year t;
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market-to-book ratio at end of year t;
LEV_t = total debts, scaled by total assets at end of year t;
CEO_t is equal to one if the firm changes its chief executive officer/general manager in year t-1 or t-2; and equal to zero otherwise.

Next, consistent with prediction, the coefficient on the interaction terms of NI_t - REV_t - NI_{t-1}, BACC and CEO is negative and significant at the 1% level. This result suggests that, while firms tend to reverse the accumulated impairment to avoid earnings declines, this tendency is more pronounced for firms with recent changes in their senior management. In other words, managers who created a "cookie jar" are more likely to reverse the accumulated impairment to avoid earnings declines, perhaps to show their ability to make profitable changes in firm performance. Thus, this finding provides additional supporting evidence that changes in senior management suggest that the firms may engage in earnings managements.

In Table 6.9, the coefficient on BACC*CEO is positive, while the coefficient on (NI_t - REV_t - NI_{t-1})*BACC*CEO is negative. Collectively, both results can be interpreted as follows: Firstly, new managers, during the year of their appointment, revalue assets and record impairment charges. Prior studies also demonstrate that new management tend to recognise impairment loss in the year of their appointment (Strong & Meyer, 1997; Elliot & Shaw, 1988). Impairment recognition is also found to be associated with big bath reporting (Zucca & Campbell, 1992). In addition, the new CEOs have incentives to reduce earnings at the beginning of their terms, in order to make advances in company performance more achievable (Pourciau, 1993). These findings provide evidence that new management reports the impairment to manage the earnings downward, and attributes them to the previous management. Consistent with these findings, the correlation matrix in Panel B of Table 6.3 indicates a high correlation between BACC and CEO, suggesting that the size of impairment is related to the change in management. This may suggest that the new management recognises higher impairment charges during the year of their appointment.

Then, the high BACC, which has been recognised by firms that had recently changed their senior management, is reversed to avoid earnings declines. They reverse the BACC to improve the firm performance and display to the market that previous problems have been settled, and slowly recovered. Overall, the results support the hypothesis that new CEOs report the impairment charges in the year of their appointment because blame can be placed on prior management, and then they reverse the charges to improve future profits.

6.4 Robustness checks

6.4.1 Replacing AWCA with a dummy variable

The sensitivity of the regression results presented in this chapter is also tested. For the results presented in Tables 6.4 and 6.5, the AWCA variable is replaced with a dummy variable, as defined in Chapter 5, where firms in the top 30%, in terms of AWCA, are regarded as potential earnings managers, and firms in the middle 40% as non-managers of earnings. Based on this procedure, 109 firms are classified as earnings managers, and 146 firms are classified as non-managers of earnings. The result of this test is presented in Appendix P.

As indicated in the table, the coefficient on NI_t - REV_t - NI_{t-1} is not related to REV. This result indicates that the earnings change of earnings managers does not explain the reversal recognition. In other words, the reversals reported by earnings managers do not reflect the improved performance of the assets. In contrast, the coefficient on the interaction term, NI_t - REV_t - NI_{t-1}*D, is positive and significant (at the 10% level). This result indicates that the positive earnings change of non-earnings mangers has a stronger association with REV, compared to the earnings managers. In addition, the sum of β_1 and β_2 is positive and

significant (at the 1% level), indicating that the positive earnings change of non-managers of earnings is positively associated with REV. Overall, the results are consistent with the findings in Chapter 5, suggesting that reversal firms with a greater likelihood to manage earnings report reversals opportunistically, while the reversals reported by firms which are less likely to manage earnings reflect the economic condition of the firms. Thus, this test not only provides the robustness test for this chapter, but also for the findings in Chapter 5.

Appendix Q presents the sensitivity test for the results presented in Table 6.5. In general, the overall results are consistent with the results in Table 6.5. NI_t - REV_t - NI_{t-1} is negatively associated with REV, indicating that earnings managers report the reversals to avoid earning declines. The coefficient on NI_t - REV_t - NI_{t-1} *D is positive, suggesting that non-managers of earnings report the reversals for economic reasons. The coefficient on NI_t - REV_t - NI_{t-1}*CG is also positive, indicating that the positive relationship between earnings change and REV is more pronounced in firms with good corporate governance practices. Lastly, consistent with the result in Table 6.5, the coefficient on NI_t - REV_t - NI_{t-1}*D *CG is positive. Thus, the results are robust, in relation to the measurement of earnings management.

6.4.2 Dichotomising the NI_t - REV_t - NI_{t-1} variable

In this chapter, incentives to avoid earnings declines variables are the focus of the empirical analyses. Thus, this study examines the robustness of the measurement of the incentives to avoid the earnings declines variable NI_t - REV_t - $NI_{t-1.}$ Following Duh et al. (2009), the continuous measure of pre-reversal earnings change is replaced with a dummy variable, which is equal to zero if NI_t - REV_t - NI_{t-1} < 0, and zero otherwise. The regressions of Equations 3-6 to 3-11 are re-estimated by replacing the continuous variables of change in net

income with the dummy variable. The results of this sensitivity test are reported in Appendices R to W.

Qualitatively, the results of the sensitivity test for Equations 3-6 and 3-7 are similar to those reported in Tables 6.4 and 6.5. The coefficients on NI_t - REV_t - NI_{t-1} and AWCA are positive, while NI_t - REV_t - NI_{t-1} *AWCA is still negative. Similarly, the coefficient on the interaction term NI_t - REV_t - NI_{t-1}*AWCA *CG is still positive. Thus, the results in Tables 6.4 and 6.5 hold and are robust, in relation to the measurement of NI_t - REV_t - NI_{t-1}.

The results of the sensitivity test for Equations 3-8 to 3-11, qualitatively, are also unchanged. The coefficients of all variables are similar to the primary results. The coefficient on the interaction term, NI_t - REV_t - NI_{t-1} *BACC, is still negative, and, for NI_t - REV_t - NI_{t-1}*BACC *CG, remains positive. Similarly, the coefficients on NI_t - REV_t - NI_{t-1}*BACC *LEV and NI_t - REV_t - NI_{t-1}*BACC *CEO remain negative. Overall, all the results from estimating Equations 3-8 to 3-11 are robust, in relation to the measurement of changes in net income.

6.5 Summary

This chapter presents further findings to answer the research questions: Is the reversal reporting associated with other manifestations of earnings management? What is the influence of corporate governance in reversal reporting?

The findings in Chapter 4 document that, in the reversal year, firms that reverse impairment charges perform better than their matched firms. Furthermore, the Malaysian market also positively values the reversals. However, the reversals are not related to future firm

performance measured using accounting performance measures. Thus, in general, the reversals reported by Malaysian firms reflect the economic changes of the value of their non-current assets. An insignificant relationship between reversals and future firm performance may indicate that some firms report the reversals for earnings management. As expected, the findings in Chapter 5 reveal that there are two motivations related to impairment reversals. Firstly, reversal firms with high AWCA report the reversals opportunistically. Their reversals are negatively associated with future performance, and are not associated with stock returns. Secondly, reversal firms with insignificant AWCA report reversals that are positively associated with future firm performance and stock market returns. Chapter 5 concludes that the information content of the reversal of impairment charges is conditional on the existence of earnings management in the firm.

This chapter provides additional findings to support the above findings. In particular, this chapter presents findings regarding the relationship between reversals and other earnings management indicators, namely incentives to avoid earnings declines. The chapter also presents the findings on the relationship between reversals, incentives to avoid earnings declines and AWCA. The estimation of Equation 3-6 provides some supportive results. The change in net income relative to the prior year is positively associated with reversals, indicating that reversals are reported after the firms report positive net income changes. Hence, reversals are reported as the impaired non-current assets of the firms, are partly recovered and contribute to the income generation. The findings support the results in Chapter 4, suggesting that, overall, Malaysian firms report the reversals for economic reasons. As expected, AWCA is also positively associated with reversals, suggesting that the reversals reported may be associated with earnings management. Consistent with the general findings in Chapter 5, that high AWCA is associated with earnings management, the results

from estimating Equation 3-6 provide evidence that reversal firms with high AWCA are more likely to report reversals to avoid earnings declines. Incorporating corporate governance in the estimation model provides interesting results. Consistent with the argument that effective corporate governance mitigates earnings management, the results from estimating Equation 3-7 show that the reversal reporting by firms with high AWCA to avoid earnings declines is less likely to occur in firms with effective corporate governance.

Incorporating BACC in the estimation model also provides supporting results. Equation 3-8 estimates the relationship between reversals and BACC. Consistent with prior studies, this study finds that, the more the firms recognised the impairment charges in the prior year, the larger the impairment is reversed. The results of estimating Equation 3-9 indicate that the reversal firms also reverse the accumulated impairment to avoid earnings declines. Such behaviour is more pronounced for firms with a high leverage ratio and firms that recently change their senior management. The latter two findings are related to an estimation of Equations 3-10 to 3-11. Incorporating the corporate governance variable in the model, Equation 3-9, also provides consistent findings that corporate governance is essential in monitoring corporate decisions. The analysis reveals that the reversal of accumulated impairment to avoid earnings declines is less likely to occur in firms with good corporate governance.

Similarly to Chapters 4 and 5, the robustness tests are also performed for all results presented in this chapter, and, qualitatively, the results are unchanged.

CHAPTER 7: SUMMARY AND CONCLUSIONS

7.1 Overall view of the study

There is an increasing trend in many jurisdictions across the world to move from historical cost accounting to fair value accounting in the preparation of financial statements. Capital market regulators and standard setters believe that fair value provides a more relevant measure of assets, liabilities and earnings than historical cost. They also believe that the measure appears to meet the conceptual framework of financial reporting better than other measurements (Whittington, 2008). Accounting standard setters around the world have issued standards requiring the recognition of assets and liabilities at fair value and changes in their fair value in income statements. In the US, the FASB has issued several standards that require the measurement and disclosure of accounting amounts using fair values. Among the most significant are those standards related to the financial instruments. Outside the US, accounting standards issued by the IASB are accepted and adopted in many countries. The IASB has issued IFRSs, and, similarly to the accounting standard in US, the IASB issued two key fair value standards that related to accounting for financial instruments. In 2011, the IASB issued IFRS 13, *Fair Value Measurement*, which establishes a single framework for the measurement of fair value. Besides that, the IASB also allows the use of the fair value measurement in the application of other standards, such as in impairment testing, revaluation of non-current assets and accounting for retirement benefits plan.

The move to fair value accounting does suggest the possible enhancement of corporate financial reporting, because fair value accounting provides current financial information to users with three qualitative characteristics: relevance, comparability and timeliness. These

characteristics favour fair value measurement over historical cost in the valuation of assets and liabilities. Thus, financial information with these three characteristics is important and useful to users who do not have privileged access to the entity's internal information. Its usefulness in executing decisions is also the main characteristic of financial information, as stressed in the IASB's conceptual framework. The measure also provides users with predictive value that enables them to increase the likelihood of correctly forecasting the performance of their investments. Several papers provide evidence that reporting an asset at fair value is value-relevant to users (Aboody et al., 1999; Barth & Clinch, 1998). It provides information regarding future firm performance which is relevant to users in establishing an investment decision. On the other hand, historical cost accounting provides "book value" information to users, which is argued as less relevant in decision-making. It stresses cost allocation, rather than providing the current value of the assets.

Despite the presumed benefits associated with fair value accounting, it is argued that the measurement at fair value reduces the reliability of financial information relative to historical cost, because it involves estimates, especially to the assets that are not actively traded in the market. Although the absence of active markets is a major problem for non-financial assets, the problem is no less obvious for financial assets, particularly for compound instrument (Landsman, 2007). Estimates in projecting future cash flows may provide managers with a wide degree of discretion regarding the choice of which rules, and when to apply them. As documented in the earnings management literature, the discretionary element in accounting standards may be exploited, since it provides both the opportunity and incentives for them to decide when to inflate the assets value and/or earnings, for their private benefit.

Earnings management, even if conducted without violating the requirements of the accounting standards, may reduce the quality of earnings. Inaccurate information which does not portray the true performance of the firm may lessen the ability of shareholders and other users of financial statements to make informed decisions. To resolve the agency conflict between managers and shareholders, a monitoring mechanism is required to protect the rights of the shareholders. Hence, effective corporate governance is required in the public companies to monitor and influence the managers' decisions.

This study investigates whether the application of fair value and value in use measures in FRS 136, *Impairment of Assets*, allow managers to communicate their private knowledge regarding future firm performance, or to opportunistically exploit the latitude allowed by the standard. The standard requires the recognition of impairment losses when the fair values or value in use of non-current assets are lower than the carrying value. Reversal of the impairment charges is also allowed when the fair value or value in use increases. The fair value increases because the impaired asset is recovered, or partly recovered, and is expected to improve the firm's operations. Specifically, this study investigates the information content hypothesis and opportunistic reporting hypothesis of impairment reversals recorded by Malaysian public listed companies from 2006 to 2009. The data are analysed to answer the following research questions:

Does the reversal of impairment loss reporting portray the reality of economic performance, or is associated with opportunistic earnings management behaviour?

Is the reversal reporting associated with other manifestations of earnings management?

What is the influence of corporate governance in reversal reporting?

The reversal of impairment losses is an accounting treatment described under FRS 136, *Impairment of Assets*, with an objective to ensure that non-current assets are not reported as greater than their fair value. An impairment loss should be recognised when the fair value or value in use is lower than the carrying amount. The impairment charges can be reversed in future if the opposite situation occurs. Reporting the non-current assets at fair value is important to ensure that the information provided to users is relevant in decision-making. This is because it reflects the most current economic value of the assets. The current value of the assets also helps users of financial statement to predict the future profitability of the firms, because it reflects current information about future cash flows. Thus, if the reversals are reported based on the current condition of the assets, such reversals should be associated with firm performance.

Prior studies provide little evidence of opportunistic reversal reporting, as the issue of reversal reporting is rarely explored. They largely focus on the opportunistic reporting of impairment reversals (Duh et al., 2009; Chen et al., 2009; Zhang et al., 2010). Taking a broader perspective on earnings management, this study examines whether reversal information communicates managers' private knowledge regarding future firm performance, or whether it is recognised for earnings management. Thus, it is unique, compared to prior studies on impairment reversal. It does not focus only on the reporting incentives, but also relates the reversals to other measures of earnings management. If firms use items other than reversal accruals to manipulate earnings, they may also use reversals for the same purpose.

In earnings management research, aggregate accruals models have been used extensively in detecting earnings manipulation. However, some authors argue that the aggregate model may lead to misleading inferences, due to the difficulty in separating discretionary and

nondiscretionary accruals. An alternative method used to detect earnings manipulation is to examine specific accruals as reported by firms. Potentially, a more powerful method to detect earnings manipulation can be developed by exploiting information concerning specific accruals (Beneish, 1997; Dechow et al., 2012). A study detailing specific accruals allows researchers to investigate the direct relationship between the specific accruals and their determinants (McNichols, 2000). Thus, this study aims to contribute to the literature on earnings management using specific accruals.

7.2 Summary of research methodology

Univariate and multivariate analyses are performed on a sample of Malaysian public companies that recognised the reversal of impairment losses during 2006 to 2009. Reversal firms are identified through a keyword search, using reversal-related phrases in 3,577 annual reports of Malaysian public companies during the period of study. Using this procedure, 242 reversal firm-years are identified and matched to control firms which are impaired non-reversal firms, on the basis of size and industry type. 182 firms are successfully matched to control firms, and the total sample for this study is 364 firm-years.

Univariate tests include a comparative analysis between reversal firms and their control firms, and a difference in differences analysis between potential earnings managers and non-managers of earnings relative to their corresponding control firms. In multivariate analysis, four accounting measure-based models and one market measure-based model are constructed to estimate the relationship between reversals and firm performance. In further analyses, the regression analyses are performed by differentiating between potential earnings managers and non-managers of earnings, classified based on the level of abnormal accruals, measured using

the DeFond and Park (2001) model. This study also examines whether the accumulated impairment is associated with earnings management. As prior studies document that larger impairment is related to "big bath" reporting, this study examines whether the size of the beginning balance of accumulated impairment is associated with opportunistic reversal reporting. In the last part of the analysis, this study links the reversals to another reporting incentive; i.e. incentives to avoid earnings declines. The association between the reporting incentives and the reversals is examined. The impact of the level of abnormal accruals and the accumulated impairment on the association is also examined.

7.3 Summary of the research results

This study has documented three empirical investigations concerning reversal reporting among Malaysian public listed companies. The findings of each investigation are summarised in this section.

7.3.1 Reversal of impairment loss reporting and firm performance

In general, similar to previous studies, this study finds that the magnitude of reversal of impairment loss is large, as illustrated by the percentage of reversals in net income and the beginning balance of accumulated impairment loss. The statistics also indicate that Malaysian public companies reverse more in other investment and property, plant and equipment. In univariate analysis, the test of differences between reversal firms and control firms illustrates that, in the reversal year, firms that reverse the impairment charges are more profitable, as measured by the return on equity. This result holds true after adjusting earnings for reversals. The reversal firms also generate more sales. Thus, the reversals reported by reversal firms are

associated with enhanced firm performance. This finding suggests that non-current assets of reversal firms are recovered, or partly recovered. The level of abnormal accruals of reversal firms and control firms is similar. Thus, on average, the reversal firms do not engage in earnings management more than the control firms. Overall, the descriptive statistics shows that Malaysian firms reverse the impairment charges as a response the economic changes in assets' value.

The analysis of the association between the impairment reversals and firm performance provides some evidence to support the view that reversal information reflects economic fundamental of the firms. In the market-based test, the present study finds that the market prices the reversal information as reflected by the positive association between reversals and contemporaneous stock returns. The finding is consistent with Aboody et al. (1999) and Chen et al. (2009), suggesting that reversal information possesses incremental information content regarding the future profitability of the firm. However, in regression analyses between reversals and future profitability, measured by cash flow from operations and operating income, this study does not find evidence to support the information content hypothesis. One possible explanation is that not all reversals are a result of managers appropriately responding to a recovery on the value of impaired assets, and some may be due to earnings management. In general, this study concludes that the reporting of impairment losses in Malaysia portrays the economic changes of the non-current assets' value.

7.3.2 Reversal of impairment losses, firm performance and reporting incentives

In further analyses, this study finds that the level of abnormal accruals measured using the DeFond and Park (2001) model influence the reversal reporting. The analysis provides an

answer to the insignificant results of the association between reversals and accounting performance-based measures reported in Chapter 4. A comparison between reversal firms with high AWCA (also regarded as earnings managers) and reversal firms with the lowest absolute AWCA (also regarded as non-managers of earnings), relative to their control firms, provides evidence that the latter group outperforms the former group. The operating cash flows and operating income in the reversal year, and the subsequent year of the non-managers of earnings, are higher than those of the earnings managers. The result is consistent with the expectation that firms that are likely to manage earnings report the reversal opportunistically, while non-managers of earnings report the reversal with a subsequent improvement of assets in generating income and cash flows.

The test of the association between firm performance and reversals reported by earnings managers and non-managers of earnings provides findings consistent with the expectations and the univariate test explained above. It is hypothesised that the reversals of non-managers of earnings are positively associated with firm performance. In accounting performance-based measures, this study finds that reversals reported by non-managers of earnings explain firm performance in the subsequent year after reversals, measured by four performance measures: operating cash flows, change in operating cash flows, operating income and change in operating income. These results are supported by the positive market reaction to the reversals of non-managers of earnings. The results are consistent with prior studies pertaining to asset revaluation (Aboody et al., 1999). The market perceives that the reversals of non-managers of earnings are value-relevant. Conversely, the reversals reported by firms with high AWCA are negatively related to future firm performance, and not related to stock returns. Thus, the information content of reversal reporting in Malaysia is dependent on the existence of earnings management. The recovery of the impaired assets of firms with less

incentive to manage earnings is followed up by improved future firm performance, and positively valued by the market. The reversals reported by these firms communicate information regarding the future performance of the firms. Hence, the informative earnings management hypothesis is supported. On the other hand, reversals reported by firms with high AWCA are followed up by reducing cash flows and income. The high AWCA in the reversal year is reversed in the following year; hence, reducing the income. In summary, this study finds two groups of firms pertaining to reversal reporting; one group (non-managers of earnings) reports the reversals as a response to the economic reality of the firms, and the other group (earnings managers) reports the reversals opportunistically.

7.3.3 Reversal of impairment losses, earnings declines and corporate governance

To answer the second research question (i.e. is the reversal reporting associated with other manifestations of earnings management?), this study examines the relationship of reversals with incentives to avoid earnings declines. Since reversal recognition increases the reported earnings, it may be used to avoid earnings declines relative to the prior year. In the univariate analysis, as expected, the pre-reversal earnings change relative to the prior year, and the pre-reversal income of the reversal firms is higher than the control firms. This difference illustrates that the reversal firms begin to recover from previous impairment, and that the recovery helps firms to improve the operating of the firms; hence, the reported income in the reversal year increases. The small magnitude of pre-reversal earnings declines and losses, compared to the control firms, indicate that the reversal firms gradually recover, and that the reported earnings begin to increase. The control firms continue to underperform, and report large earnings declines and/or losses compared to the reversal firms.

This study also provides new evidence that reversals are associated with an aggregate measure of earnings management. The result supports the argument that firms combine the use of specific accruals with other accruals to manage earnings. Firms with high abnormal accruals are regarded as firms with high incentives to manage earnings upward. The literature provides findings on the motives of firms managing earnings upward. This study finds that firms with high abnormal accruals manage earnings to avoid earnings declines relative to the prior year. However, good governance practices among the firms mitigate the firms from opportunistically report the reversals. Thus, this study provides findings consistent with corporate governance literature, indicating that the mechanism is important in public companies, to monitor the managers' actions (Jensen & Meckling, 1976; Dechow et al., 1996, Healy & Pelapu, 2001).

The size of previously recognised impairment losses is also related to the reversals. This study provides findings consistent with literature, suggesting that firms reverse the accumulated impairment to avoid earnings declines (Duh et al., 2009). Extending the literature detailing corporate governance, the result provides evidence that effective corporate governance helps to curtail opportunistic reversals designed to avoid earnings declines. In addition, firms with high debt levels reverse the accumulated impairment to avoid earnings declines, perhaps to avoid debt covenant violation. The final examination in this study provides new insight into the effects of new management on impairment and reversal recognition. Consistent with the literature (Strong & Meyer, 1987; Elliot & Shaw, 1988), new management, in the year of their appointment, recognise higher impairment, and blame prior management for not recognising the impaired assets. This study provides evidence that, a few years after the appointment, the management reverse the accumulated impairment to avoid earnings declines. The findings of the study suggest that new management recognise large

impairment charges in the appointment year, and then reverse the impairment to manage earnings. The result is supported by the findings from earlier study (Zhang et al., 2010).

7.4 Implications of the study

As previously explained, reporting an asset at fair value or value in use improves the information usefulness to the users of the financial statements, because it signals information regarding expected future firm performance. However, the subjectivity involved in estimating the fair value or value in use, especially to non-financial assets with no active market, may be exploited by some firms, to manipulate earnings. The findings of this study support both views. In impairment testing, using a fair value measure in the determination of the recoverable amount of impaired assets allows managers to signal their information to users of the financial statements regarding future firm performance. The performance of reversal firms is improved, and the reversals reported signal the improved future firm performance in generating profits and cash flows. The market also perceives that the assets measured at fair value are value-relevant. This finding is consistent with prior studies regarding the value relevance of fair value measurement (Barth, 1994; Nelson, 1996; Venkatachalam, 1996; Barth & Clinch, 1998). The evidence of this study also supports the critics of fair value measurement. The discretion in estimating the fair value or value in use of the assets allows managers to opportunistically inflate earnings. The reversal of firms with incentives to manage earnings upward are not associated with future firm performance, and not related to stock market return. They also reverse the accumulated impairment to avoid earnings declines. Based on the analysis, the evidence reveals that the application of fair value measures in impairment testing is informative to users of the financial statements. Although

some firms apply the fair value measure opportunistically, the intention to signal information relevant to future profitability is the dominant motivation of reversal reporting in Malaysia.

The findings of this study provide input to the debate regarding the recognition of the reversal of an impairment loss. IFRS allows firms to reverse the impairment charges, but US GAAP prohibits such reversals. The reason underlying why FASB prohibits the reversals is that an impairment loss should result in a new basis for the impaired assets. The evidence from this study reveals that the reversals reported by firms that are less likely to manage earnings are positively associated with future firm performance and current stock market returns, and this is the dominant motivation in Malaysia. The evidence provides useful information to the regulatory bodies, accounting bodies, academics and financial statement users, suggesting that recognising an asset at fair value is generally a reliable measure. It provides information regarding future firm performance. The findings support the argument of fair value accounting proponents, that the measurement provides useful information to users of financial statements. To some extent, the objective of a financial reporting framework to assist users by providing relevant information is achieved. Evidence in Aboody et al. (1999), and Barth and Clinch (1998), support the use of fair value accounting in the revaluation of fixed assets. This study provides supportive evidence that fair value measurement in an impairment standard is relevant to users, because it provides information about future firm performance. The findings are consistent with the notion that the discretionary element in accounting standards enables the earnings to communicate information regarding future firm performance.

The Malaysian Code on Corporate Governance is introduced to enhance the monitoring mechanism in Malaysian public companies. The results of this study reveal that effective

corporate governance helps to curtail opportunistic reversals reporting in firms with a high likelihood to manage earnings. This implies that the recommendations in MCCG are significant, and must be followed, especially in the case of weak investor protection legislation, as in Malaysia. The findings support the initiatives by Malaysian regulatory body to continuously promote a good corporate governance culture in the Malaysian capital market.

7.5 Limitations of the study, and areas for future research

The results of this study are subject to the following limitations. Firstly, the study only examines the association between reversal and one-year-ahead firm performance. However, Aboody et al.'s (1999) study examines the association between revaluation and future firm performance over the subsequent one to three years. As the non-current assets are expected to be used for more than one year, their recovery may also be observed over several years. This study only uses the future performance over the subsequent year after reversals, due to the data unavailability at the time of this study. Because the performance of non-current assets is observed in more than one year, future research could extend the study to include more years of future performance, in order to better reflect the recovery of the impaired assets.

Secondly, this study examines the reversals of four types of non-current assets in aggregate value. The four types of assets are property, plant and equipment, other investments, investment in associates and investment property. In general, all the non-current assets are acquired for long-term use, with different purposes. Future research could examine the effects of different assets on the relationship between reversals and future performance. For example, property, plant and equipment is an operating asset which is directly used to generate

operating income and operating cash flows. The reversal of this asset should have a stronger association with future performance and stock return. The incentives to manage earnings of each type of non-current asset could also be different.

Thirdly, this study focuses on the reversals of impairment losses, and only examines some effects of the impairment. A further extension of this study might examine the reporting incentives during impairment recognition. If reversals reported by firms with high incentives to manage earnings are opportunistic, the same motive should underlie the impairment recognition. It is also interesting to investigate the future performance of the control firms. If the reversals reported for economic reasons are positively associated with future firm performance, the impairment of the control firms which are regarded as also for economic reasons should also be associated with reduced future firm performance.

Fourthly, the results of this study are also subject to the reliability of the earnings management measures used to classify potential earnings managers and non-managers of earnings. There is a debate regarding the reliability of earnings management measures used in accounting research. This study relies on the abnormal accruals measured using DeFond and Park's (2001) model to differentiate between opportunistic reversals and reversals reported for economic reasons. The short period of study also limits this study to employing other earnings management measures.

7.6 Summary and conclusions

The results of the study support the informative perspective of earnings management. Reversal reporting using FRS 136 is claimed to provide managers with substantial flexibility

in recognising accruals. Unlike prior studies detailing impairment reversals, the findings provide evidence that reversal firms, on average, recognise the unrealised gain that reflects the changes in non-current asset values. Thus, the discretionary element provided in FRS 136 allows managers to communicate their expectations regarding current and future firm performance, and this is the dominant motivation for the reversal of impairment charges in Malaysia.

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APPENDIX A

An example of impairment reversal disclosure in income statement and notes to the account.

A. Disclosure of reversals in income statement of Berjaya Land Berhad in Annual Report 2008

Income Statement
For the year ended 30 April 2008

	Note	Group 2008 RM'000	Group 2007 RM'000
Revenue	31	1,516,088	538,368
Cost of sales		(900,229)	(203,829)
Gross profit		615,859	334,539
Other income	32	32,193	29,341
Administrative expenses		(411,981)	(324,555)
Selling and marketing expenses		(53,895)	(21,829)
		182,176	17,496
Investment related income	33	1,167,784	55,859

B. Disclosure of reversals in notes to the accounts of Berjaya Land Berhad in Annual Report 2008

33 INVESTMENT RELATED INCOME

	Group 2008 RM'000	Group 2007 RM'000
Interest income:		
- Fixed and other deposits	9,768	4,577
- Inter-company		
- penultimate holding company	2,733	4,578
- subsidiary companies	-	-
- related companies	11,552	8,679
- others	1,403	441
	25,456	18,275
Dividend income (gross):		
- From other investments quoted		
- in Malaysia	4,191	1,118
- outside Malaysia	134	62
	-	826
Gain on disposal of an associated company	19,227	-
Gain on disposal of subsidiary companies	15,682	16,181
Gain on disposal of other investments	88,647	-
Gain on disposal of investment properties	938,107	-
Gain on reissuance of ICULS 1999/2009	76	-
Gain on disposal of unquoted investments	35,332	-
Negative goodwill arising from business combination	-	3,297
Reversal of impairment loss in other investments	-	5,029
Reversal of impairment loss in investment in associates	-	-
Write-back of amounts due from subsidiary companies		
Net reversal of impairment in value of property, plant and equipment	**7,428**	-
Reversal of allowance for doubtful debts of amount due from subsidiary company	-	-
Fair value adjustment	33,504	11,071

3 PROPERTY, PLANT AND EQUIPMENT

(a) During the current financial year, the Group effected a net reversal of impairment loss of **RM7,428,000**(2007:Nil) included in Note 33 to the financial statements in respect of certain assets owned by its subsidiary companies due to increase in their fair values.

APPENDIX B

Frequency and magnitude of impairment loss reversal (Initial sample), 2006-2009

		Million MYR		% Total Assets[a]		% Specific Assets[b]		% Net Income[c]		% Accumulated Impairment[d]	
	Sample	*Mean*	Median	Mean	Median	*Mean*	Median	Mean	Median	Mean	Median
Panel A: Breakdown by year											
2006	46	5.85	0.67	0.58	0.10	9.21	1.26	29.10	3.13	26.36	11.37
2007	68	6.61	0.66	0.49	0.13	15.38	3.72	14.36	3.22	29.95	16.38
2008	49	3.75	0.69	0.23	0.08	6.09	1.44	7.76	1.04	29.51	17.40
2009	79	3.93	1.01	0.52	0.14	14.09	3.84	22.86	4.39	36.51	22.20
Total	*242*	*5.01*	**0.79**	**0.46**	**0.11**	**11.89**	**2.11**	**18.68**	**3.13**	**31.34**	**18.01**
Panel B: Breakdown by type of asset											
Property, plant and equipment	96	4.60	0.83	0.52	0.12	28.17	3.09	17.39	2.87	26.56	5.99
Investment in associates	24	6.10	2.88	0.59	0.22	24.42	5.28	28.87	5.93	30.67	9.49
Other investments	100	5.32	0.57	0.44	0.10	24.64	3.03	17.54	2.82	36.42	21.80
Investment properties	13	0.98	0.03	0.09	0.02	2.23	0.23	2.43	0.12	34.09	19.22
Multiple	9	8.95	5.40	0.32	0.22	25.06	11.65	38.60	8.86	16.46	6.30
Total	**242**	**5.01**	**0.79**	**0.46**	**0.11**	**11.89**	**2.11**	**18.68**	**3.13**	**31.34**	**18.01**

[a] It is calculated as reversal amount divided by total assets at the end of year.

[b] Percentage of specific assets are based on average of related assets category for the year of reversal.

[c] It is based on the net income before reversal. The calculation of mean and median for percentage of specific assets in 2007 is based on 67 reversals as specific asset of one reversal cannot be identified from the annual report. The mean and the median are based on the winsorized data. Before winsorization, the data are highly skewed to the right with mean (median) of 24.83 (3.09). Data are then wonsorized so that the minimum and maximum values are less than three standard deviations from the mean.

[d] The determination of % of beginning balance of accumulated impairment is based on 217 observations as 25 reversal firms combined the accumulated impairment and accumulated depreciation in one account for Property, Plant and Equipment. It is calculated as reversal amount over beginning balance of accumulated impairment loss in the year of reversal.

APPENDIX C

Sensitivity analysis for Equation 3-5: Relationship between impairment loss reversals and abnormal stock returns (clustered standard errors)

$$AbReturn_t = \gamma_0 + \gamma_1 REV'_t + \gamma_2 NI_t + \gamma_3 BTM_t + u_t \qquad (3\text{-}5)$$

Variables	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0041	0.55	0.582
REV'	+	2.8810	1.81	0.067
NI	+	0.9860	4.00	0.000
BTM	+	-0.0382	-1.02	0.317
N		178		
R^2		0.087		
F-statistic		8.66		
p-value (F-statistic)		0.000		

Variable definitions:
AbReturn = control group adjusted returns beginning eight months before the financial year-end and ending four months after the financial year-end;
REV' = reversal amount scaled by market value of equity at the end of year t-1;
NI = net income before reversal in year t scaled by market value of equity at the end of year t-1;
BTM = book to market value of equity at the end of year t-1.

APPENDIX D

Sensitivity analysis for Equation 3-5: Relationship between impairment loss reversals and abnormal stock returns (incorporating BACC variable)

$$AbReturn_t = \gamma_0 + \gamma_1 REV'_t + \gamma_2 NI_t + \gamma_3 BTM_t + \gamma_4 BACC_t + u_t \quad (3\text{-}5)$$

Variables	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		0.0818	0.86	0.406
REV'	+	2.9496	1.89	0.061
NI	+	0.8987	3.96	0.000
BTM	+	-0.1414	-1.10	0.250
BACC		-0.3724	-0.22	0.825
N		155		
R^2		0.085		
F-statistic		4.36		
p-value (F-statistic)		0.001		

Variable definitions:
AbReturn = control group adjusted returns beginning eight months before the financial year-end and ending four months after the financial year-end;
REV' = reversal amount scaled by market value of equity at the end of year t-1;
NI = net income before reversal in year t scaled by market value of equity at the end of year t-1;
$BACC_t$ = beginning balance of accumulated impairment loss in year t deflated by total assets at end of year t;
BTM = book to market value of equity at the end of year t-1.

APPENDIX E

Sensitivity analysis for Equation 3-1A: Relationship between impairment loss reversal and future CFO, moderated by incentive to manage earnings using abnormal working capital accruals (clustered standard errors)

$$CFO_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 CFO_t + \beta_4 WC_t + \beta_5 SIZE_t + \beta_6 MTB_t + \varepsilon_t \quad (3\text{-}1A)$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.2275	-2.37	0.019
D	?	-0.0181	-1.81	0.074
REV	?	-1.2406	-3.83	0.000
D*REV	+	1.5664	2.70	0.008
CFO	+	0.3565	4.08	0.000
WC	?	0.0401	1.27	0.206
SIZE	?	0.0137	2.66	0.009
MTB	?	0.0074	1.02	0.309
N		128		
Adjusted R^2		0.2626		
F-statistic		10.54		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		0.3258		0.0057

Variable definitions:

CFO_{t+1}= net cash flow from operations in year t+1 divided by total assets at end of year t;
D = equals to one for reversal firms at the middle 40% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for reversal firms at the top 30% of abnormal working capital accruals (earnings managers);
REV= reversal amount scaled by total assets at end of year t;
CFO = net cash flow from operations in year t divided by total assets at end of year t;
WC = working capital in year t divided by total assets at end of year t;
SIZE = log of total sales at end of year t;
MTB = market to book ratio at end of year t.

APPENDIX F

Sensitivity analysis for Equation 3-2A: Relationship between impairment loss reversal and change in future CFO, moderated by incentive to manage earnings using abnormal working capital accruals (clustered standard errors)

$$\Delta CFO_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 \Delta CFO_t + \beta_4 \Delta WC_t + \beta_5 SIZE_t + \beta_6 MTB_t + \varepsilon_t \quad (3\text{-}2A)$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.1096	-1.19	0.236
D	?	-0.0158	-2.36	0.020
REV	?	-1.1170	-3.02	0.003
D*REV	+	1.5459	2.40	0.018
ΔCFO	+	-0.6709	-5.91	0.000
ΔWC	?	0.0406	0.70	0.485
SIZE	?	0.0070	1.60	0.112
MTB	?	-0.1096	-0.76	0.448
N		128		
Adjusted R^2		0.4684		
F-statistic		12.26		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		0.4289		0.0184

Variable definitions:

ΔCFO_{t+1}= change in net cash flow from operations from year t to year t+1 divided by total assets at end of year t;
D = equals to one for reversal firms at the middle 40% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for reversal firms at the top 30% of abnormal working capital accruals (earnings managers);
REV= reversal amount scaled by total assets at end of year t;
ΔCFO = change in net cash flow from operations from year t-1 to year t divided by total assets at end of year t;
ΔWC = change of working capital from year t-1 to year t divided by total assets at end of year t;
SIZE = log of total sales at end of year t;
MTB = market to book ratio at end of year t.

APPENDIX G

Sensitivity analysis for Equation 3-3A: Relationship between impairment loss reversal and future operating income, moderated by incentive to manage earnings using abnormal working capital accruals (clustered standard errors)

$$OPIN^*_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D^* REV_t + \beta_3 OPIN_t + \beta_4 SIZE_t + \beta_5 MTB_t + \varepsilon_t \quad (3\text{-}3A)$$

Variable	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.1034	-0.92	0.358
D	?	-0.0497	-1.99	0.049
REV	?	-3.0601	-2.86	0.005
D*REV	+	3.9774	2.71	0.008
OPIN	+	0.9065	6.52	0.000
SIZE	?	0.0083	1.25	0.214
MTB	?	0.0164	0.14	0.885
N		128		
Adjusted R^2		0.3490		
F-statistic		30.21		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		0.9173		0.0097

Variable definitions:

$OPIN^*_{t+1}$= operating income before depreciation and amortization expenses, reversal amount and AWCA in year t+1 divided by total assets at end of year t;
D = equals to one for reversal firms at the middle 40% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for reversal firms at the top 30% of abnormal working capital accruals (earnings managers);
REV= reversal amount scaled by total assets at end of year t;
OPIN= operating income in year t;
SIZE= log of total sales at end of year t;
MTB= market to book ratio at end of year t.

APPENDIX H

Sensitivity analysis for Equation 3-4A: Relationship between impairment loss reversal and change in future operating income, moderated by incentive to manage earnings using abnormal working capital accruals (clustered standard errors)

$$\Delta OPIN^*_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D^* REV_t + \beta_3 \Delta OPIN_t + \beta_4 SIZE_t + \beta_5 MTB_t + \varepsilon_t \quad (3\text{-}4A)$$

Variable	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.2548	-1.33	0.183
D	?	-0.1352	-2.10	0.044
REV	?	-6.5221	-1.81	0.071
D*REV	+	7.1281	1.90	0.060
$\Delta OPIN_t$	+	-0.6582	-4.48	0.000
SIZE	?	0.0233	1.58	0.110
MTB	?	0.0415	2.36	0.017
N		128		
R^2		0.3021		
F-statistic		30.21		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		0.606		0.067

Variable definitions:

Δ**OPIN*$_{t+1}$**= change in operating income before depreciation and amortization expenses, reversal amount and AWCA from year t to year t+1 divided by total assets at end of year t;
D = equals to one for reversal firms at the middle 40% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for reversal firms at the top 30% of abnormal working capital accruals (earnings managers);
REV= reversal amount scaled by total assets at end of year t;
Δ**OPIN$_t$**= change in operating income before reversal from year t-1 to year t divided by total assets at end of year t;
SIZE= log of total sales at end of year t;
MTB= market to book ratio at end of year t.

APPENDIX I

Sensitivity analysis for Equation 3-5A: Relationship between impairment loss reversal and abnormal stock returns, moderated by incentive to manage earnings using abnormal working capital accruals (clustered standard errors)

$$AbReturn_t = \gamma_0 + D + \gamma_1 REV'_t + \gamma_2 D*REV'_t + \gamma_3 NI_t + \gamma_4 BTM_t + u_t \quad (3\text{-}5A)$$

Variables	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		0.1929	1.66	0.101
D		-0.3438	-2.46	0.016
REV'	?	-0.6693	-0.52	0.606
D*REV'	+	11.042	3.62	0.000
NI	+	1.3999	3.95	0.000
BTM	+	-0.0604	-1.23	0.142
N		250		
R^2		0.1796		
F-statistic		7.93		
p-value (F-statistic)		0.000		
$\gamma_1 + \gamma_2$		10.3727		0.000

Variable definitions:
AbReturn = control group adjusted returns beginning eight months before the financial year-end and ending four months after the financial year-end;
REV'= reversal amount scaled by market value of equity at the end of year t-1;
NI = net income before reversal in year t scaled by market value of equity at the end of year t-1;
BTM = book to market value of equity at the end of year t-1;
D = equals to one for reversal firms at the middle 40% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for reversal firms at the top 30% of abnormal working capital accruals (earnings managers);
D*REV' = interaction term of variables D and BTM.

APPENDIX J

Relationship between impairment loss reversals, firm performance, and incentives to manage earnings incorporating accumulated impairment loss

$$CFO_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 CFO_t + \beta_4 WC_t + \beta_5 SIZE_t + \beta_6 MTB_t + \beta_7 BACC_t + \varepsilon_t \quad (3\text{-}1B)$$

$$\Delta CFO_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 \Delta CFO_t + \beta_4 \Delta WC_t + \beta_5 SIZE_t + \beta_6 MTB_t + \beta_7 BACC_t + \varepsilon_t \quad (3\text{-}2B)$$

$$OPIN*_{t+1} = \alpha + D + \beta_1 REVt + \beta_2 D*REV_t + \beta_3 OPINt + \beta_4 SIZEt + \beta_5 MTBt + \beta_6 BACC_t + \varepsilon_t \quad (3\text{-}3B)$$

$$\Delta OPIN*_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 \Delta OPIN_t + \beta_4 SIZE_t + \beta_5 MTB_t + \beta_6 BACC_t + \varepsilon_t \quad (3\text{-}4B)$$

$$AbReturn_t = \alpha + D + \beta_1 REV'_t + \beta_2 D*REV'_t + \beta_3 NI_t + \beta_4 BTM_t + \beta_5 BACC'_t + \varepsilon_t \quad (3\text{-}5B)$$

Variable	Equation 3-1B Coefficient (p-value)	Equation 3-2B Coefficient (p-value)	Equation 3-3B Coefficient (p-value)	Equation 3-4B Coefficient (p-value)	Equation 3-5B Coefficient (p-value)
D	-0.0086	-0.0077	-0.0403	-0.1852	-0.2696
	(0.575)	(0.588)	(0.116)	(0.081)	(0.034)
REV	-1.2268	-1.5608	-2.7483	-6.2561	
	(0.001)	(0.000)	(0.009)	(0.063)	
D*REV	1.4287	1.4357	4.4099	7.8246	
	(0.029)	(0.016)	(0.013)	(0.068)	
REV'					1.4483
					(0.632)
D*REV'					9.0618
					(0.001)
CFO	0.3068				
	(0.004)				
ΔCFO		-0.6302			
		(0.000)			
OPIN			0.9230		
			(0.000)		
ΔOPIN				-0.6059	
				(0.000)	
NI					1.3757
					(0.000)
WC	0.0531				
	(0.161)				
ΔWC		0.0872			
		(0.101)			
SIZE	0.0121	0.0058	0.0108	0.0825	
	(0.013)	(0.167)	(0.280)	(0.082)	

MTB	0.0102	0.0048	0.0156	0.1523	
	(0.269)	(0.467)	(0.289)	(0.075)	
BTM					-0.1516
					(0.002)
BACC	0.0119	0.0560	-0.0138	-0.0362	
	(0.819)	(0.233)	(0.942)	(0.781)	
BACC'					-1.0931
					(0.701)
Intercept	-0.2080	-0.1025	-0.1639	-0.2311	0.2400
	(0.031)	(0.194)	(0.388)	(0.157)	(0.041)
N	108	108	108	108	107
Adjusted R^2	0.2371	0.4714	0.3124	0.2652	0.1889

Variable definitions:

CFO_{t+1} = net cash flow from operations in year t+1 divided by total assets at end of year t;

ΔCFO_{t+1} = change in net cash flow from operations from year t to year t+1, CFO_{t+1} - CFO_t, divided by total assets at end of year t;

$OPIN^*_{t+1}$ = operating income before depreciation and amortization expenses, reversal amount and AWCA in year t+1 divided by total asset at end of year t;

$\Delta OPIN^*_{t+1}$ = change in operating income before depreciation and amortization expenses, reversal amount and AWCA from year t to year t+1 divided by total asset at end of year t;

AbReturn $_t$ = control group-adjusted returns beginning eight months before the financial year-end and ending four months after the financial year-end;

REV_t = reversal amount scaled by total assets at end of year t;

REV'_t = reversal amount scaled by the market value of equity at the end of year t-1;

CFO_t = net cash flow from operations in year t divided by total assets at end of year t;

ΔCFO_t = change in net cash flow from operations from year t-1 to year t divided by total assets at end of year t;

$OPIN_t$ = operating income before reversals in year t divided by total assets at end of year t;

$\Delta OPIN_t$ = change in operating income before reversals from year t-1 to year t divided by total assets at end of year t;

NI_t = net income before reversal in year t scaled by market value of equity at the end of year t-1;

WC_t = working capital in year t divided by total assets at end of year t;

ΔWC_t = change in working capital from year t-1 to year t divided by total assets at end of year t;

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market to book ratio at end of year t;

BTM_t = the book to market value ratio at the end of year t-1;

$BACC_t$ = beginning balance of accumulated impairment loss scaled by total assets at end of year t;

$BACC'_t$ = beginning balance of accumulated impairment loss scaled by market value of equity at the end of year t-1;

D = 1 if the firm is a non-earning manager, i.e. its AWCA lies in the range between 31st and 70th percentile among reversal firms. It takes the value 0 if the firm is an earning manager, i.e. its AWCA is above 70th percentile.

APPENDIX K

Difference in differences analysis of reversal earnings managers, reversal non-managers of earnings and control firms ranked by abnormal working capital accruals using alternative measure for non-managers of earnings

Variables	Difference between reversal earnings managers and control firms		Difference between reversal non-managers of earnings and control firms		Difference in differences	p-value
	Mean (Median)	n	Mean (Median)	n		
BACC	0.0152	47[a]	0.0129	47[a]	0.0023	0.420
	(0.0044)		(0.0017)		0.0027	0.171
ROEadj	0.0192	55	0.1017	55	-0.0825	0.082
	(0.0231)		(0.0453)		-0.0222	0.210
CFO_t	-0.0219	55	0.0349	55	-0.0568	0.042
	(-0.0278)		(0.0225)		-0.0503	0.070
CFO_{t+1}	-0.0041	55	0.0108	55	-0.0149	0.561
	(0.0167)		(0.0104)		0.0063	0.786
$OPIN_t$	-0.0051	55	0.0048	55	-0.0099	0.806
	(0.0008)		(-0.0085)		0.0077	0.460
$OPIN^*_t$	-0.1450	55	0.1053	55	-0.2503	0.000
	(-0.1162)		0.1041		-0.2203	0.000
$OPIN_{t+1}$	0.0255	55	0.0424	55	-0.0169	0.330
	(0.0192)		0.0418		-0.0226	0.160
$OPIN^*_{t+1}$	0.0504	55	0.0650	55	-0.0146	0.634
	(0.0410)		0.0729		-0.0319	0.310
Return	0.0842	53[b]	0.0341	53[b]	0.0501	0.426
	(0.1375)		0.0291		0.1084	0.304

The differences in mean and median differences are tested using two-tailed *t*-tests and Mann Whitney test, respectively.

[a]The sample size is 47 reversal earnings managers firms and 47 control firms. The sample size is reduced as 8 observations are not traceable as the firms combine accumulated depreciation and accumulated impairment in one account.

[b]The sample size is 53 reversal earnings managers firms and 53 control firms. The sample size is reduced because the market data for 2 observations are not available in Datastream.

The operating income with * indicates the adjustment for depreciation and AWCA.

Variable definitions:

BACC = beginning balance of accumulated impairment loss in year t deflated by total assets at end of year t;
ROEadj = return on equity (adjusted), calculated as net income minus impairment reversal in year t divided by total equity at end of year t;
CFO_t = net cash flow from operations in year t divided by total assets at end of year t;
CFO_{t+1}= net cash flow from operations in year t+1 divided by total assets at end of year t;
$OPIN_t$ = operating income before reversals in year t divided by total assets at end of year t;
$OPIN_{t+1}$ = operating income before reversals in year t+1 divided by total assets at end of year t;
Return = stock returns beginning eight months before the financial year-end and ending four months after the financial year-end.

APPENDIX L

Relationship between impairment loss reversal and future CFO, moderated by incentive to manage earnings using alternative definition for non-managers of earnings (clustered standard errors)

Panel A: Dependent variable is future cash flow from operations

$CFO_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 CFO_t + \beta_4 WC_t + \beta_5 SIZE_t + \beta_6 MTB_t + \varepsilon_t$ *(3-1A)*

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.2199	-2.23	0.027
D	?	-0.0408	-3.12	0.002
REV	?	-1.3906	-3.69	0.000
D*REV	+	1.7964	3.30	0.001
CFO	+	0.4184	4.13	0.000
WC	?	0.0561	1.02	0.309
SIZE	?	0.0137	2.68	0.008
MTB	?	0.0133	1.16	0.247
N		110		
R^2		0.2923		
F-statistic		11.04		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		0.4058		0.0012

Panel B: Dependent variable is change in future cash flow from operations

$\Delta CFO_{t+1} = \alpha + D + \beta_1 REV_t + \beta_2 D*REV_t + \beta_3 \Delta CFO_t + \beta_4 \Delta WC_t + \beta_5 SIZE_t + \beta_6 MTB_t + \varepsilon_t$ *(3-2A)*

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0860	-1.01	0.316
D	?	-0.0329	-2.61	0.010
REV	?	-1.0581	-3.05	0.003
D*REV	+	1.4999	3.30	0.001
ΔCFO	+	-0.5052	-5.82	0.000
ΔWC	?	0.4048	0.76	0.448
SIZE	?	0.0060	1.35	0.178
MTB	?	-0.0021	-0.32	0.748
N		110		
R^2		0.4256		
F-statistic		11.68		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		0.4418		0.0012

Variable definitions:

CFO_{t+1}= net cash flow from operations in year t+1 divided by total assets at end of year t;

ΔCFO_{t+1}=change in net cash flow from operations in year t+1 divided by total assets at end of year t;

D = equals to one for reversal firms at the bottom 30% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for reversal firms at the top 30% of abnormal working capital accruals (earnings managers);

REV= reversal amount scaled by total assets at end of year t;

CFO= net cash flow from operations in year t divided by total assets at end of year t;

ΔCFO= change in net cash flow from operations in year t divided by total assets at end of year t;

WC = working capital in year t divided by total assets at end of year t;

ΔWC = change in working capital from year t-1 to year t divided by total assets at end of year t;

SIZE= log of total sales at end of year t;

MTB= market to book ratio at end of year t.

APPENDIX M

Relationship between impairment loss reversal and future operating income, moderated by incentive to manage earnings using alternative definition for non-managers of earnings (clustered standard errors)

$$OPIN^*_{t+1} = \alpha + D + \beta_1 REVt + \beta_2 D^*REV_t + \beta_3 OPINt + \beta_4 SIZEt + \beta_5 MTBt + \varepsilon_t \quad (3\text{-}3A)$$

Variable	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.1652	-0.92	0.359
D	?	-0.0686	-2.95	0.004
REV	?	-2.4385	-2.77	0.006
D*REV	+	5.1915	4.00	0.000
OPIN	+	0.9617	5.71	0.000
SIZE	?	0.0118	1.26	0.210
MTB	?	0.0055	0.29	0.771
N		110		
R^2		0.3581		
F-statistic		20.19		
p-value (F-statistic)		0.0000		
$\beta_1 + \beta_2$		2.7530		0.000

Variable definitions:

$OPIN^*_{t+1}$= operating income before depreciation and amortization expenses, reversal amount and AWCA in year t+1 divided by total assets at end of year t;
D = equals to one for reversal firms at the bottom 30% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for reversal firms at the top 30% of abnormal working capital accruals (earnings managers);
REV= reversal amount scaled by total assets at end of year t;
OPIN= operating income in year t;
SIZE= log of total sales at end of year t;
MTB= market to book ratio at end of year t.

APPENDIX N

Relationship between impairment loss reversals and abnormal stock returns, moderated by incentive to manage earnings using alternative definition for non-managers of earnings (clustered standard errors)

$$AbReturn_t = \gamma_0 + D + \gamma_1 REV'_t + \gamma_2 D*REV'_t + \gamma_3 NI_t + \gamma_4 BTM_t + u_t \quad (3\text{-}5A)$$

Variables	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		0.0493	0.41	0.685
D		-0.0455	-0.40	0.689
REV'	?	0.2279	0.94	0.348
D*REV'	+	5.6990	2.14	0.035
NI	+	1.1614	3.48	0.001
BTM	+	-0.0701	-1.42	0.159
R^2		0.1808		
F-statistic		5.99		
p-value (F-statistic)		0.000		
N		212		
$\gamma_1 + \gamma_2$		5.4711		0.000

Variable definitions:
AbReturn = control group adjusted returns beginning eight months before the financial year-end and ending four months after the financial year-end;
REV'= reversal amount scaled by market value of equity at the end of year t-1;
NI = net income before reversal in year t scaled by market value of equity at the end of year t-1;
BTM = book to market value of equity at the end of year t-1;
D = equals to one for reversal firms at the bottom 30% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for reversal firms at the top 30% of abnormal working capital accruals (earnings managers);
D*REV' = interaction term of variables D and BTM.

APPENDIX P

Tobit regression testing the relationship between impairment loss reversal, AWCA and incentives to avoid earnings declines (dummy variable for AWCA)

$REV_t = \alpha + D + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2(NI_t - REV_t - NI_{t-1})*D + \beta_3 SIZE_t + \beta_4 MTB_t + \beta_5 LEV_t + \beta_6 CEO_t + \varepsilon_t$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0043	-0.46	0.647
$NI_t - REV_t - NI_{t-1}$	?	0.0182	1.37	0.171
D	+	0.0004	0.24	0.809
$NI_t - REV_t - NI_{t-1} *D$	+	0.0308	1.72	0.086
SIZE	-	-0.0001	-0.20	0.842
MTB	+	0.0003	0.68	0.500
LEV	+	0.0045	1.15	0.251
CEO	+	0.0047	2.56	0.011
N		255		
Likelihood Ratio		26.25		
p-value (Likelihood Ratio)		0.000		
$\beta_1 + \beta_2$		0.049		0.000

Variable definitions:
REV_t = reversal amount scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t scaled by total assets at end of year t;
D = equals to one for firms at the middle 40% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for firms at the top 30% of abnormal working capital accruals (earnings managers);
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market to book ratio at end of year t;
LEV_t = total debts scaled by total assets at end of year t;
CEO_t = equals to one if firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

APPENDIX Q

Tobit regression testing the relationship between impairment loss reversal, AWCA, incentives to avoid earnings declines and corporate governance (dummy variable for AWCA)

$$REV_t = \alpha + D + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2(NI_t - REV_t - NI_{t-1})*D + \beta_3(NI_t - REV_t - NI_{t-1})*CG_t + \beta_4 D*CG_t + \beta_5(NI_t - REV_t - NI_{t-1})*D*CG_t + \beta_6 CG_t + \beta_7 SIZE_t + \beta_8 MTB_t + \beta_9 LEV_t + \beta_{10} CEO_t + \varepsilon_t$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0012	-0.12	0.902
$NI_t - REV_t - NI_{t-1}$	+	-0.0567	-1.67	0.095
D	+	0.0003	0.09	0.928
$NI_t - REV_t - NI_{t-1} *D$	+	0.1889	4.05	0.000
$NI_t - REV_t - NI_{t-1}*CG$	?	0.0431	2.43	0.016
D*CG	?	0.0004	0.25	0.803
$NI_t - REV_t - NI_{t-1}*D *CG$	+	0.0956	3.77	0.000
CG	+	0.0012	0.87	0.388
SIZE	-	-0.0003	-0.66	0.508
MTB	+	0.0003	0.74	0.463
LEV	+	0.0024	0.62	0.538
CEO	+	0.0042	2.32	0.021
N		255		
Likelihood Ratio		42.67		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = change in pre-reversal net income from year t-1 to year t scaled by total assets at end of year t;
D = equals to one for firms at the middle 40% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for firms at the top 30% of abnormal working capital accruals (earnings managers);
CG_t = corporate governance index calculated as the board size (one point if number of directors is between 5 and 11, and 0 otherwise) + audit committee independence (one point if the audit committee comprises solely of independent outside director and at least one of whom has financial expertise, and 0 otherwise) + board independence (one point if the proportion of independent non-executive directors is more than 50%, and 0 otherwise);
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market to book ratio at end of year t;
LEV_t = total debts scaled by total assets at end of year t;
CEO_t = equals to one if firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

APPENDIX R

Tobit regression testing the relationship between impairment loss reversal, AWCA and incentives to avoid earnings declines (dummy variable for change in net income)

$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 AWCA_t + \beta_3(NI_t - REV_t - NI_{t-1})*AWCA_t + \beta_4 SIZE_t + \beta_5 MTB_t + \beta_6 LEV_t + \beta_7 CEO_t + \varepsilon_t$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0018	-0.20	0.843
$NI_t - REV_t - NI_{t-1}$	+	0.0027	1.80	0.073
AWCA	+	0.0025	1.78	0.075
$NI_t - REV_t - NI_{t-1}$ *AWCA	-	-0.0293	-2.41	0.017
SIZE	-	-0.0002	-0.54	0.589
MTB	+	0.0003	0.73	0.464
LEV	+	0.0024	0.61	0.545
CEO	+	0.0045	2.48	0.014
N		364		
Likelihood Ratio		30.33		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = equal to zero if change in pre-reversal net income from year t-1 to year t is less than zero, and one otherwise;
$AWCA_t$ = abnormal working capital accrual (DeFond and Park, 2001) deflated by total assets at end of year t;
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market to book ratio at end of year t;
LEV_t = total debts scaled by total assets at end of year t;
CEO_t = equals to one if firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

APPENDIX S

Tobit regression testing the relationship between impairment loss reversal, AWCA, incentives to avoid earnings declines and corporate governance (dummy variable for change in net income)

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 AWCA_t + \beta_3(NI_t - REV_t - NI_{t-1})*AWCA_t + \beta_4(NI_t - REV_t - NI_{t-1})*CG_t + \beta_5 AWCA_t*CG_t + \beta_6(NI_t - REV_t - NI_{t-1})*AWCA_t*CG_t + \beta_7 CG_t + \beta_8 SIZE_t + \beta_9 MTB_t + + \beta_{10} LEV_t + \beta_{11} CEO_t + \varepsilon_t$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		0.0002	0.02	0.985
$NI_t - REV_t - NI_{t-1}$	+	0.0009	0.28	0.781
AWCA	+	0.0061	0.24	0.812
$NI_t - REV_t - NI_{t-1}$ *AWCA	-	-0.0921	-3.01	0.003
$NI_t - REV_t - NI_{t-1}$*CG	?	0.0008	0.44	0.664
AWCA*CG	?	0.0042	0.35	0.725
$NI_t - REV_t - NI_{t-1}$*AWCA *CG	+	0.0381	2.55	0.011
CG	+	0.0003	0.24	0.813
SIZE	-	-0.0003	-0.70	0.481
MTB	+	0.0005	1.02	0.308
LEV	+	-0.0009	-0.22	0.824
CEO	+	0.0044	2.50	0.013
N		364		
Likelihood Ratio		45.17		
p-value (Likelihood Ratio)		0.000		

Variable definitions:

REV_t = reversal amount scaled by total assets at end of year t;

$NI_t - REV_t - NI_{t-1}$ = equal to zero if change in pre-reversal net income from year t-1 to year t is less than zero, and one otherwise;

$AWCA_t$ = abnormal working capital accrual (DeFond and Park, 2001) deflated by total assets at end of year t;

CG_t = corporate governance index calculated as the board size (one point if number of directors is between 5 and 11, and 0 otherwise) + audit committee independence (one point if the audit committee comprises solely of independent outside director and at least one of whom has financial expertise, and 0 otherwise) + board independence (one point if the proportion of independent non-executive directors is more than 50%, and 0 otherwise);

$SIZE_t$ = the natural log of total sales at end of year t;

MTB_t = the market to book ratio at end of year t;

LEV_t = total debts scaled by total assets at end of year t;

CEO_t = equals to one if firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

APPENDIX T

Tobit regression testing the relationship between impairment loss reversal, BACC and incentives to avoid earnings declines (dummy variable for change in net income)

$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4 SIZE_t + \beta_5 MTB_t + \beta_6 LEV_t + \beta_7 CEO_t + \varepsilon_t$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0126	-1.28	0.202
$NI_t - REV_t - NI_{t-1}$	+	0.0026	1.51	0.132
BACC	+	0.2263	4.92	0.000
$NI_t - REV_t - NI_{t-1}$ *BACC	-	-0.0684	-2.16	0.031
SIZE	-	0.0003	0.60	0.552
MTB	+	0.0002	0.49	0.626
LEV	+	-0.0038	-0.93	0.353
CEO	+	0.0038	2.02	0.044
N		310		
Likelihood Ratio		66.31		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = equal to zero if change in pre-reversal net income from year t-1 to year t is less than zero, and one otherwise;
$BACC_t$ = beginning balance of accumulated impairment loss in year t deflated by total assets at end of year t;
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market to book ratio at end of year t;
LEV_t = total debts scaled by total assets at end of year t;
CEO_t = equals to one if firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

APPENDIX U

Tobit regression testing the relationship between impairment loss reversal, BACC, incentives to avoid earnings declines and corporate governance (dummy variable for change in net income)

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4(NI_t - REV_t - NI_{t-1})*CG_t + \beta_5 BACC_t*CG_t + \beta_6(NI_t - REV_t - NI_{t-1})*BACC_t*CG_t + \beta_7 CG_t + \beta_8 SIZE_t + \beta_9 MTB_t + \beta_{10} LEV_t + \beta_{11} CEO_t + \varepsilon_t$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0081	-0.86	0.389
$NI_t - REV_t - NI_{t-1}$	+	-0.0049	-1.37	0.172
BACC	+	-0.2408	-2.03	0.043
$NI_t - REV_t - NI_{t-1}$ *BACC	-	-0.4496	-3.35	0.001
$NI_t - REV_t - NI_{t-1}$*CG	?	0.0040	2.14	0.033
BACC*CG	?	0.2272	4.41	0.000
$NI_t - REV_t - NI_{t-1}$*BACC *CG	+	0.2594	4.16	0.000
CG	+	-0.0028	-1.96	0.051
SIZE	-	0.0003	0.68	0.495
MTB	+	0.0002	0.44	0.663
LEV	+	-0.0019	-0.49	0.626
CEO	+	0.0038	2.14	0.033
N		310		
Likelihood Ratio		87.61		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = equal to zero if change in pre-reversal net income from year t-1 to year t is less than zero, and one otherwise;
$BACC_t$ = beginning balance of accumulated impairment loss in year t deflated by total assets at end of year t;
CG_t = corporate governance index calculated as the board size (one point if number of directors is between 5 and 11, and 0 otherwise) + audit committee independence (one point if the audit committee comprises solely of independent outside director and at least one of whom has financial expertise, and 0 otherwise) + board independence (one point if the proportion of independent non-executive directors is more than 50%, and 0 otherwise);
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market to book ratio at end of year t;
LEV_t = total debts scaled by total assets at end of year t;
CEO_t = equals to one if firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

APPENDIX V

Tobit regression testing the relationship between impairment loss reversal, BACC, incentives to avoid earnings declines and debt covenant (dummy variable for change in net income)

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4(NI_t - REV_t - NI_{t-1})*LEV_t + \beta_5 BACC_t *LEV_t + \beta_6(NI_t - REV_t - NI_{t-1})*BACC_t *LEV_t + \beta_7 SIZE_t + \beta_8 MTB_t + \beta_9 LEV_t + \beta_{10} CEO_t + \varepsilon_t$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0115	-1.17	0.244
$NI_t - REV_t - NI_{t-1}$	+	0.0064	1.54	0.125
BACC	+	0.6775	4.62	0.000
$NI_t - REV_t - NI_{t-1}$ *BACC	+	0.6881	4.19	0.000
$NI_t - REV_t - NI_{t-1}$*LEV	?	0.0083	0.91	0.363
BACC*LEV	?	-0.9524	-3.17	0.002
$NI_t - REV_t - NI_{t-1}$*BACC *LEV	-	-1.2546	-3.82	0.000
SIZE	+	0.0001	0.29	0.776
MTB	-	0.0003	0.54	0.592
LEV	+	0.0016	0.22	0.822
CEO	+	0.0040	2.24	0.026
N		310		
Likelihood Ratio		82.75		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = equal to zero if change in pre-reversal net income from year t-1 to year t is less than zero, and one otherwise;
$BACC_t$ = beginning balance of accumulated impairment loss in year t deflated by total assets at end of year t;
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market to book ratio at end of year t;
LEV_t = total debts scaled by total assets at end of year t;
CEO_t = equals to one if firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

APPENDIX W

Tobit regression testing the relationship between impairment loss reversal, BACC, incentives to avoid earnings declines and CEO change (dummy variable for change in net income)

$$REV_t = \alpha + \beta_1(NI_t - REV_t - NI_{t-1}) + \beta_2 BACC_t + \beta_3(NI_t - REV_t - NI_{t-1})*BACC_t + \beta_4(NI_t - REV_t - NI_{t-1})*CEO_t + \beta_5 BACC_t *CEO_t + \beta_6(NI_t - REV_t - NI_{t-1})*BACC_t *CEO_t + \beta_7 SIZE_t + \beta_8 MTB_t + \beta_9 LEV_t + \beta_{10} CEO_t + \varepsilon_t$$

	Predicted sign	Coefficient	t-Statistic	p-value
Intercept		-0.0118	-1.20	0.231
$NI_t - REV_t - NI_{t-1}$	+	0.0030	1.61	0.107
BACC	+	0.2204	4.73	0.000
$NI_t - REV_t - NI_{t-1}$ *BACC	?	0.0798	1.48	0.139
$NI_t - REV_t - NI_{t-1}$*CEO	?	0.0005	0.11	0.915
BACC*CEO	?	0.1741	0.68	0.500
$NI_t - REV_t - NI_{t-1}$*BACC *CEO	-	-1.119	-2.49	0.013
SIZE	+	0.0003	0.52	0.601
MTB	-	0.0003	0.55	0.585
LEV	+	-0.0039	-0.95	0.342
CEO	+	0.0024	0.55	0.584
N		310		
Likelihood Ratio		68.15		
p-value (Likelihood Ratio)		0.000		

Variable definitions:
REV_t = reversal amount scaled by total assets at end of year t;
$NI_t - REV_t - NI_{t-1}$ = equal to zero if change in pre-reversal net income from year t-1 to year t is less than zero, and one otherwise;
$BACC_t$ = beginning balance of accumulated impairment loss in year t deflated by total assets at end of year t;
$SIZE_t$ = the natural log of total sales at end of year t;
MTB_t = the market to book ratio at end of year t;
LEV_t = total debts scaled by total assets at end of year t;
CEO_t = equals to one if firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.

APPENDIX X

Difference in differences analysis of reversal earnings managers, reversal non-managers of earnings and control firms ranked by beginning balance of accumulated impairment

Variables	Difference between reversal high BACC firms and control firms (G1)		Difference between reversal moderate and low BACC firms and control firms (G2)		Difference in differences	p-value
	Mean (Median)	N	Mean (Median)	N		
AWCAs	0.0054 (0.0136)	47	-0.0109 (-0.0142)	108	0.0163 0.0278	0.361 (0.041)
ROEadj	0.0123 (-0.0071)	47	0.0643 (0.0304)	108	-0.0520 (0.0375)	0.267 (0.179)
CFO_t	-0.0269 (-0.0054)	47	0.0205 (0.0206)	108	-0.0474 (-0.0260)	0.013 (0.047)
CFO_{t+1}	-0.0043 (0.0103)	47	0.0144 (0.0180)	108	-0.0187 (-0.0077)	0.256 (0.316)
$OPIN_t$	-0.0315 (-0.0114)	47	0.0136 (0.0086)	108	-0.0451 (-0.0200)	0.027 (0.042)
$OPIN^*_t$	-0.0707 -0.0548	47	0.0201 0.0181	108	-0.0908 -0.0729	0.044 0.061
$OPIN_{t+1}$	0.0043 (0.0348)	47	0.0666 (0.0681)	108	-0.0623 (-0.0333)	0.001 (0.004)
$OPIN^*_{t+1}$	0.0054 0.0109	47	0.0497 0.0622	108	-0.0443 -0.0513	0.243 0.210
Return	0.0890 (-0.0186)	47	0.0307 (-0.0236)	108	0.0583 0.0050	0.586 (0.685)

The differences in mean and median differences are tested using two-tailed t-test and Mann Whitney test, respectively. The operating income (OPIN) with * indicates the adjustment for depreciation and AWCA.
The reversal firms are ranked by the size of BACC. The reversal firms at the top 30% are regarded as reversal high BACC firms (47 firm-years) and the rest as reversal moderate and low BACC firms (108 firm-years).

Variable definitions:

AWCAs = absolute value of abnormal working capital accruals (DeFond and Park, 2001) deflated by total assets at end of year t;
ROEadj = return on equity (adjusted), calculated as net income minus impairment reversal in year t divided by total equity at end of year t;
CFO_t = net cash flow from operations in year t divided by total assets at end of year t;
CFO_{t+1} = net cash flow from operations in year t+1 divided by total assets at end of year t;
$OPIN_t$ = operating income before reversals in year t divided by total assets at end of year t;
$OPIN_{t+1}$= operating income before reversals in year t+1 divided by total assets at end of year t;
Return = stock returns beginning eight months before the financial year-end and ending four months after the financial year-end.

APPENDIX Y

Descriptive statistics of firm performance before the reversal year

Variables	Reversal high BACC firm-years *n = 47*		Reversal moderate and low BACC firms-years *n = 108*		Diff in Mean *p-value*	Diff in Median *p-value*
	Mean	Median	Mean	Median		
$Loss_{t-1}$[a]	0.51	1	0.14	0	0.00	0.00
ROE_{t-1}	-0.07	-0.01	0.09	0.10	0.00	0.00
DY_{t-1}	0.01	0.00	0.03	0.02	0.07	0.04
WC_{t-1}	0.12	0.08	0.23	0.22	0.00	0.00
LQ_{t-1}	1.80	1.34	2.38	1.79	0.04	0.00
$Loss_{t-2}$[a]	0.64	1	0.17	0	0.00	0.00
ROE_{t-2}	-0.06	0.03	0.12	0.09	0.00	0.00
DY_{t-2}	0.02	0.01	0.03	0.02	0.26	0.18
WC_{t-2}	0.12	0.12	0.24	0.24	0.00	0.00
LQ_{t-2}	1.77	1.43	2.39	1.90	0.02	0.00

The difference (diff) in means and medians between reversal high BACC (beginning accumulated impairment loss) are tested using two-tailed *t*-tests and Mann Whitney test, respectively.

[a]The test for the variables is test of proportion.

All data are winsorized at the 1% level.

Variable definitions:

$Loss_{t-1}$ = equal to 1 if net income in year t-1 is negative and 0 otherwise;
ROE_{t-1} = net income in year t-1 scaled by total equity at end of year t;
DY_{t-1} = firm's dividend yield, measured as dividends per share divided by the share price in year t-1;
WC_{t-1} = working capital in year t-1 scaled by total assets at end of year t;
LQ_{t-1} = liquidity ratio, calculated as current assets divided by current liabilities in year t-1;
$Loss_{t-2}$ = equal to 1 if net income in year t-2 is negative and 0 otherwise;
ROE_{t-2} = net income in year t-2 scaled by total equity at end of year t;
DY_{t-2} = firm's dividend yield, measured as dividends per share divided by the share price in year t-2;
WC_{t-2} = working capital in year t-2 scaled by total assets at end of year t;
LQ_{t-2} = liquidity ratio, calculated as current assets divided by current liabilities in year t-2.

APPENDIX Z

Summary of variable definitions

Variables	Definitions
Assets	Natural logarithm of total assets at end of year t;
REV	Amount of impairment loss reversal deflated by total assets at end of year t;
REV'	Amount of impairment loss reversal deflated by the market value of equity at the end of year t-1;
AWCA	Abnormal working capital accrual (DeFond and Park, 2001) deflated by total assets at end of year t;
Sales	Natural logarithm of total sales at end of year t;
BACC	Beginning balance of accumulated impairment loss in year t deflated by total assets at end of year t;
BACC'	Beginning balance of accumulated impairment loss in year t deflated by market value of equity at the end of year t-1;
ROE	Return on equity, calculated as net income in year t divided by total equity at end of year t;
ROEadj	Return on equity (adjusted), calculated as net income minus impairment reversal in year t divided by total equity at end of year t;
CFO_t	Net cash flow from operations in year t divided by total assets at end of year t;
CFO_{t+1}	Net cash flow from operations in year t+1 divided by total assets at end of year t;
ΔCFO_t	Change in net cash flow from operations from year t-1 to year t divided by total assets at end of year t;
ΔCFO_{t+1}	Change in net cash flow from operations from year t to year t+1 divided by total assets at end of year t;
$OPIN_t$	Operating income in year t divided by total assets at end of year t;
$OPIN^*_{t+1}$	Operating income before depreciation and amortization expenses, reversal amount and AWCA in year t+1 divided by total assets at end of year t;
$\Delta OPIN_t$	Change in operating income before reversals from year t-1 to year t divided by total assets at end of year t;
$\Delta OPIN^*_{t+1}$	Change in operating income before depreciation and amortization expenses, reversal amount and AWCA from year t to year t+1 divided by total assets at end of year t;
AbReturn	Control group adjusted returns beginning eight months before the financial year-end and ending four months after the financial year-end;
NI	Net income before reversals in year t scaled by market value of equity at end of year t-1;
WC	Working capital in year t divided by total assets at end of year t;
ΔWC	Change in working capital from year t-1 to year t divided by total assets at end of year t;
SIZE	Natural logarithm of total sales at end of year t;
MTB	The market to book ratio at end of year t;
BTM	The book to market ratio at end of year t;

D	Equals to 1 for reversal firms at the middle 40% of abnormal working capital accruals measured using DeFond and Park, 2001 (non-managers of earnings) and equals to zero for reversal firms at the top 30% of abnormal working capital accruals (earnings managers);
NI_t - REV_t - NI_{t-1}	change in pre-reversal net income from year t-1 to year t scaled by total assets at end of year t;
CG	Corporate governance index calculated as the board size (one point if number of directors is between 5 and 11, and 0 otherwise) + audit committee independence (one point if the audit committee comprises solely of independent outside director and at least one of whom has financial expertise, and 0 otherwise) + board independence (one point if the proportion of independent non-executive directors is more than 50%, and 0 otherwise);
LEV	Total debts scaled by total assets at end of year t;
CEO	Equals to one if firm changes its chief executive officer/general manager in year t-1 or t-2, and zero otherwise.