Determinants of Asset Write-offs in Malaysia: The Economic Crisis Effect[#]

Norman Mohd Saleh*
Romlah Jaffar
Universiti Kebangsaan Malaysia

Abstract: This study focuses on examining factors that determine tangible asset write-offs in Malaysian firms prior to the implementation of MASB 23 Impairment of Assets. In the absence of a specific standard that deals with this issue in Malaysia, most managers have significant freedom to determine the timing and amount of asset write-off. The study investigates whether economic climate and the level of performance have a significant effect on the propensity of the management to write-off assets. In a normal economic environment, asset write-offs are negatively related to firm performance. We hypothesised that the relationship is weaker during the economic crisis period compared to the economic prosperity period. This is attributed to the management of firms using the economic crisis period as an excuse to justify massive asset write-offs (big-bath). The economic crisis period is chosen to write-off assets in order to minimise the negative market reaction from the action. However, our results show that the relationship is stronger during the crisis period. In order to avoid losses, sample firms tended to record less write-offs during non-crisis periods compared to other firms. During the crisis period, firms may write-off assets without considering the implications of recording a loss since the macroeconomic scenario is already poor.

Keywords: Asset write-offs, signalling, performance, financial crisis and loss avoidance

1. Introduction

Asset writing-off is one of the most important items determining a firm's earnings. A study by Francis *et al.* (1996) reports that the value of fixed assets written-off is on average 4.8 per cent of the total asset. In Singapore, Loh and Tan (2002) found that many firms reporting losses may have been profitable without large asset write-offs and provisions. Since this item is important in earnings measurement, the main focus of this study is to examine factors that determine tangible asset write-offs in Malaysian firms. *Malaysian Accounting Standards Board* (MASB) 15[1] gives rooms for the firms to do regular asset revaluations

[1] Compliance to this standard was made mandatory on 1 January 2000 by the Malaysian Accounting Standards Board (a standards setting body in Malaysia). Before the standard was issued, professional practice complied with the *International Accounting Standards* (IAS 16) with similar requirements.

and make asset write-offs when necessary. This study was conducted using data that covers a period before the issuance of MASB 23 on impairment of assets in Malaysia.[2] The requirements set forth in *International Accounting Standards* (IAS) 16 and MASB 15 are far more flexible than those of the FASB in the U.S. which has detailed conditions, measurement and recognition rules for assets measurement. In the absence of a specific standard that deals with this issue in Malaysia, most managers have significant freedom to determine the timing and amount of asset write-off. To date, only Loh and Tan (2002) have investigated the phenomena of asset write-offs in a country with flexible standards. Since the decision to write-off tangible and intangible assets is very subjective under the flexible reporting regime, the item is too vulnerable to be misused as a tool to manage earnings.

The major contribution of this study is undertaking a formal test on whether the economic climate has a significant impact on the propensity of management to write-off assets. It is predicted that asset write-off is negatively related to performance in normal economic conditions. However, this relationship may be weaker in an economic crisis period compared to the economic prosperity period when all firms take the opportunity to write-off assets to clear their financial statements. The management may use the economic crisis period as an excuse to justify massive asset write-offs (big-bath) to minimise negative market reaction from the action. Asset write-offs may become widespread and the occurrence as well as magnitude can no longer be explained by conventional factors in a normal economic climate.

Indeed earnings management in distressed firms could affect resource allocation by lenders and investors. Window dressing of financial statements by virtue of asset write-offs with the aim of maximising the financial benefits of firms could threaten the credibility of financial reporting. Therefore, the objectives of this paper are twofold: first, to examine the relationships between firm performance indicators as well as other factors (such as disposal of assets, gross domestic product, house price index and audit quality) and asset write-offs; second, to test whether the relationship between firm performance and asset write-offs differ between two economic climates, that is, the expansion and crisis periods.

This paper is organised as follows. The following section discusses prior studies on factors associated with asset write-offs and hypotheses formulation. Section 3 describes the methodology used to test the hypotheses and data collection, followed by Section 4 which provides the discussion on research results. The final section concludes the paper and highlights limitations as well as future research in this area.

2. Institutional Background

The Malaysian Accounting Standards Board (MASB) and Financial Reporting Foundation[3] were established under the Financial Reporting Act 1997[4] during the second half of 1997. The establishment of MASB was an important event in Malaysian financial reporting history. Before the establishment of MASB, standards from IAS were adopted by

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[2] In Malaysia, a standard on Impairment of Assets (MASB 23) was issued on 1 January 2002.

[3] The Financial Reporting Foundation is a trustee body in charge of monitoring the performance, finance and funding of the MASB. The foundation plays an indirect role (as an initial source of views) in MASB standards setting process. The due process of standards setting is found in Tan (2000: 13).

the Malaysian Institute of Accountants (MIA). After MASB was established in 1997, twenty-four IASs have been adopted and have received the status of 'approved accounting standards'. These standards will be in use until amended, rescinded or replaced by new MASB standards. This adoption was a transitional arrangement pending the establishment of a new financial reporting regime, that is, standards that suit the local business environment. Nevertheless, compliance to these adopted standards is mandatory. Section 27 of the Financial Reporting Act 1997 clearly states that all firms incorporated under the Companies Act 1965 have to comply with the approved accounting standards. Adoption of IAS standards and MASB new standards related to fixed assets are shown in Table 1.

The original standard for fixed assets (IAS 16 Property, Plant and Equipment) was adopted by MIA (in 1983) and the Malaysian Association of Certified Public Accountants (MACPA) (in 1987). Later, the revised version of the standard was adopted in 1997. The standard was then reviewed and renamed as MASB 15 Property Plant and Equipment, and issued on 1 January 2000. The council of MIA and MAPCA did not adopt IAS 36 Impairment of Assets since the standard was issued after the standard setting agenda was passed to MASB. The MASB reviewed and renamed the standard as MASB 23 Impairment of Assets. Compliance to the standard was made mandatory on January 2002.

In summary, the Malaysian context of financial reporting is guided by established standards adopted from IASs. In the process of amending the standards to suit domestic requirements, the standards were given the approved accounting standards status. Since the establishment of MASB, these standards have been amended gradually and named as MASB standards. The KLSE and the SC have made compliance to the approved standards mandatory. Despite this fact, accounting standards do not prescribe everything. It does provide rooms for managerial discretions, allowing managers to manage earnings through accruals within legal bounds.

Prior to January 2002, the treatment of impaired assets was dealt with according to IAS 16 (Property, plant and equipment) (revised 1992) which became effective in Malaysia from 1997 until it was replaced by MASB 15 (Property, plant and equipment) in January 2002. However, these standards provide little guidance on the recognition and measurement of impairment of assets value. Therefore, managers have the capacity to manage earnings through asset write-offs.

However, under a new standard on impairment of assets adopted on 1 January 2002 (MASB 23 Impairment of assets), firms now need to focus more attention on the carrying value of their assets before recognising an impairment loss. Therefore, the incentive to manipulate earnings may have been reduced after the issuance of the new standard because of the prescribed detailed requirements for the measurement and recognition of asset impairment. However, an investigation into this issue is beyond the scope of this paper.

Hence, in this study, we focus on periods prior to the standard on impairment of assets was issued because the management have significant discretionary power to determine the timing and amount of asset write-offs. We used this experience to test whether the management of companies use an economic crisis as an excuse to write-off assets value.

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[a] Financial Reporting Act is an act to establish the Malaysian Accounting Standards Board, to provide for their functions and powers, and to provide for matters connected with the board.

In this paper we only analyse fixed asset write-offs. The write-offs are transactions that do not result from actual transactions, where the timing is discretionary (DeAngelo *et al.* 1994). This paper does not cover write-downs of marketable securities and inventory as existing standards allow little discretion over these items, and this exclusion is consistent with prior studies (Elliot and Shaw, 1988; Rees *et al.* 1996).

Table 1. Adoption of IAS standards and MASB new standards for fixed assets

Accounting Standards	Description	Operational dates			
		IASC	MACPA	MIA	MASB
IAS 16	Accounting for property, plant and equipment	1983	1983	1987	Not adopted
IAS 16	Property, plant and equipment (Revised 1992)	1997	1997	1997	MASB 15
IAS 36	Impairment of assets	1999	Not adopted	Not adopted	MASB 23 (1 January 2002)

2.1 Prior Research and Hypotheses

Previous studies such as those of Strong and Meyer (1987), Elliot and Shaw (1988), Zucca and Campbell (1992), Elliot and Hanna (1996), Francis *et al.* (1996), Bunsis (1997), Cotter *et al.* (1998), and Cotter (1999) generally suggest that asset write-offs issue is more prevalent in periods surrounding top management changes, low financial performance, and low securities return. However, data on changes in top management are not available for a long window (from year 1990 to 2001). Inclusion of such information in the test would reduce the data significantly and hence reduce the power of testing the effect of different economic cycles. We propose two hypotheses based on theoretical arguments discussed below that predict the relationship between asset write-offs and firm performance during the two economic climates.

2.1.1 Signalling

It is always assumed that managers have superior knowledge about future cash flows or earnings. This information may be communicated through financial statements to the users (Frantz 1999). Because cash flows suffer from revenues and expenses matching problem, accruals are used to improve the ability of earnings to reflect the underlying economic value of the firm (Watts and Zimmerman 1986; Holthausen 1990; Subramanyam 1996). Thus, according to the 'signalling hypothesis', managers select accounting methods and estimation measurements to produce earnings figures that can best reflect the underlying performance of the firm.

Jensen and Meckling (1976) suggest that signalling of private information can reduce agency costs and hence the costs of financing. Thus, accounting methods that are used for this purpose can maximise a firm's value and, consequently, increase the aggregate effect of the contracting parties. If managers select accounting methods prior to writing

any contract (*ex-ante*) in order to reduce agency costs of the firm, then these methods are often known as 'efficient' accounting methods (Deegan 1999). Nevertheless, Ronen and Sadan (1981) and Young (1995) argue that managers are only motivated to communicate private information when it gives good news to the market. For example, when firms are involved in heavy investments in the current year, this activity will increase future income but affect current income downwards. As such, these firms have the incentive to give a signal that future income will increase by inflating current earnings.

One of the explanations by DeAngelo *et al.* (1994) that is consistent with agency theory is that auditors and lenders monitor managers through accounting numbers. Thus, as described earlier, the incentive for income-decreasing choices is to communicate information to lenders and auditors; failure would endanger future financing sources and the managers' credibility in the labour market (DeAngelo *et al.* 1994). Therefore, it is expected that firms would write-off less (more) assets when they want to signal good (bad) future performance based on their knowledge on current performance of firm.

Therefore,

H_1: Asset write-offs are negatively related to firm performance.

2.1.2 Economic Crisis Effect

Loh and Tan (2002) found a relationship between write-off decisions and macroeconomic factors. They suggest that the frequency of asset write-offs is more prevalent during high unemployment rate periods, while the magnitude of asset write-offs is found to be higher when a country experiences a decline in its gross domestic product (GDP). To this end, there are many reasons to believe that during a financial crisis, the frequency and magnitude of asset write-offs will increase. Additionally, we believe that asset write-off is large and widespread during the crisis period, beyond the macro-economic factors identified in the literature as managers can blame the general downturn condition for the write-offs.

There are studies examining the behaviour of management in selecting the best time for asset write-offs. Elliot and Shaw (1988) found that firms tend to disclose asset write-offs in the fourth quarter, consistent with the view that market reactions to bad news is smaller in the fourth quarter compared to the first three quarters. Lower earnings due to massive asset write-offs would also suggest a lower benchmark against which future earnings can be compared. Historically, the big bath phenomenon was observed in the U.S. during difficult periods of 1970 (*Forbes* 1971: 42, 43) and in 1985 (*Business Week* 1986:3). Australian cases show that firms wrote-off assets massively during the capital market downturn in 1987 (Walsh *et al.* 1991).

Therefore, we expect that during the crisis period, most firms regardless of the profit level would take the opportunity to write-off assets. Moreover the incentive to write-off assets may be stronger in firms recording higher profits compared to firms with a lower profit because firms have a higher profit base against which asset write-offs can be charged. Therefore, if big-bath behaviour during crisis is expected:

H_2: The relationship between firm performance and asset write-offs is less negative in the crisis period compared to the expansion period.

3. Methodology

This study covers the accounting period from financial year 1990 to financial year 2000. The data was gathered from the *DATASTREAM* database and *Bank Negara Malaysia Monthly Statistical Bulletin*. Excluding firms from finance and unit trust industries, the final sample is 5,912 firm-years. After eliminating firms-years with incomplete data, the final sample consists of 5,528 firm-years.

The dependent variable is the percentage of fixed asset write-offs from previous year's total assets (*FAWO*). Consistent with prior research (Bunsis 1997; Cotter 1999; Cotter *et al.* 1998; Elliot and Shaw 1988; Elliot and Hanna 1996; Francis *et al.* 1996; Strong and Meyer 1987; Zucca and Campbell 1992), firm performance is measured as the ratio of profit before asset write-off, tax and extraordinary items to total assets (*PROFIT*) as well as the market measure (market value to book value of equity or *MVEBVE*). These variables are predicted to have a negative relationship to asset write-offs because managers could have used discretionary asset write-offs to signal future performance relating to the impairment of value. The selection of the variable is consistent with IAS 36 that the indications of impairment include a decline in the stock price to a level below its book value, obsolescence or physical damages, assets held are part of a restructuring which ends with a disposal, and deteriorated financial performance. Cash flow projections are used to estimate 'value in use' of a class of assets. Managers have to select the 'value in use' or the assets' net selling price (whichever is higher) to obtain the recoverable amount. If the recoverable amount of the assets is less than the carrying amount, the value of the assets is said have been impaired.

Therefore, firms may have written-off more assets during the financial distress period because the cash generating ability of the assets could have declined due to weakened customer demand during the crisis. As such, in many circumstances, it is impossible to clearly distinguish between the two incentives for asset write-offs, whether it is to signal deterioration of the cash generating ability of the assets, or an opportunistic move on the part of the management.

Auditors can also limit the pervasiveness of earnings management practice in firms since they have direct access to original documents. However, they cannot completely hinder such practices since accounting choices are made within GAAP boundaries.[5] Nevertheless, audit quality as indicated by large-sized accounting firms (now Big-5), is argued to some extent to restrain the incentives to manipulate accounting choices. There are prior studies examining the relationship between accruals or accounting choices and audit quality. Francis and Krishnan (1999) found that firms whose reports were audited by large accounting firms portray greater conservatism than those audited by smaller accounting firms. Results of a study by Francis *et al.* (1999) reveal that although firms engaging large audit firms have higher accruals, the firms' discretionary accruals are significantly lower than those audited by smaller accounting firms. Higher income-increasing accruals were also found by Becker

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[5] Hirst (1994) shows how auditors are less sensitive to income-decreasing accruals in management buy-out sample firms. While auditors are also found to increase their procedures on high-risk areas involving material overstatement of earnings consistent with bonus plan hypothesis, they are less sceptical of income-decreasing accruals (understatement of earnings) found in the upper-bound firms. Additional evidence is also found in DeFond and Jiambalvo (1993).

et al. (1998) in firms audited by non-Big-5 accounting firms than those audited by Big-5 firms. In other words, firms engaging Big-5 accounting firms are predicted to have less opportunistic accounting choices than firms engaging smaller accounting firms.

Audit quality is represented by a dummy variable, *AQUALITY*, being 1 for firms audited by auditors from Big-5 audit firms and 0 otherwise. The size of the audit firms is included because a review of the literature in the previous section suggests that large accounting firms (Big-5) are more effective in limiting excessive accruals manipulation. We expect this variable to be negatively related to asset write-offs.

We also included a dummy variable for crisis period (*CRISIS*) interacted with *PROFIT* to detect whether the relation between asset write-off and firm performance changed during the crisis period. The expectation is that there will be more write-offs in firms with higher profits than in firms with lower profits during the crisis period. Therefore, the expected sign for the interaction term is positive. We define economic crisis as the period from July 1997 to financial year ending December 1998. There was s a sharp decline in the value of the Ringgit, which fell by almost 100 per cent within one year ending in August 1998 (Bank Negara Malaysia 1998). At the same time, the stock market indices decreased sharply from 1,270 points in February 1997 to approximately one-third of the level (302 points), in August 1998 (Bank Negara Malaysia 2000).

Consistent with Loh and Tan (2002), differences in economic cycle during the sample period was controlled using the Gross Domestic Product (*GDP*) variable. We also included House Price Indicators (*HPI*) to reflect changes in the value of property during the period. Loh and Tan (2002) suggest that write-offs are more prominent when property vacancy rate is high. Due to unavailability of property vacancy data, we used *HPI* to test that asset write-offs are more (less) during low (high) *HPI* periods. Therefore a negative relationship is expected.

A variable named *DISPOSAL* was included to control for asset write-offs due to disposal of particular fixed assets or discontinuance of operations. If a line of business is discontinued, there is a high likelihood for the assets to be disposed through sales or to be written off. Therefore, we expect a positive relationship between *DISPOSAL* and asset write-offs.

We included size variable to control for political cost incentives. Government and its regulatory agencies can affect firms through wealth redistribution in an economy (Watts and Zimmerman 1986). Examples of the mechanisms used in wealth redistribution are tax, price support schemes, tariffs, quotas, direct subsidies, bounties, and licences. It is costly for the voters to be informed about the political processes and to form coalitions to lobby against regulations because of their heterogeneity of interests. Because of these costs, the politicians, through the government tend to transfer wealth to a small group of interests such as firms, at the expense of the public (Peltzman 1976). Therefore, politicians can increase their chances of being re-elected. The most popular proxy for political cost is size because the larger the size of a firm, the more it receives political attention (Gagnon 1971; Watts and Zimmerman 1978). As such, size has been predicted to have a positive relationship with asset write-offs (an income decreasing accounting choice). The variables used and the predicted relations to asset write-offs are summarised in Table 2.

Table 2. Variables measurement and predicted relation to asset write-offs

No.	Factors	Sign*
1.	*PROFIT* and *MVEBVE* Performance (profit before asset write-off, tax and extraordinary items to total assets and market value of equity over book value of equity) *Source: Datastream* (Bunsis 1997; Cotter 1999; Cotter, Stokes and Wyatt 1998; Elliot and Shaw 1988; Elliot and Hanna 1996; Francis, Hanna and Vincent 1996; Strong and Meyer 1987; Zucca and Campbell 1992)	–
2.	*AQUALITY* Audit quality (dummy variable, 1 for firms audited by Big 5 and 0 otherwise) (Becker et al. 1998; Francis, Maydew and Sparks, 1999; Hirst, 1994) *Source: Datastream*	–
3.	*CRISIS* Economic crisis (dummy variable, 1 for economic crisis period and 0 otherwise) *July 1997 to financial year ending December 1998*	+
4.	*GDP* Gross Domestic Product (%) *Source: Bank Negara Malaysia Monthly Statistical Bulletin*	–
5.	*HPI* House Price Index *Source: Bank Negara Malaysia Monthly Statistical Bulletin*	–
6.	*DISPOSAL* The amount of fixed assets disposal/total assets *Source: Datastream*	+
7.	*SIZE* Firm size (log total assets) (Ali and Kumar 1994; Ayres 1986; Bowen, DuCharme and Shores 1981)	+

* Expected sign of the relationship between the factors and asset write-offs.

The empirical model is presented in the following equation:

$$FAWO_{it} = \alpha_1 + \alpha_2 PROFIT_{it} + \alpha_3 MVEBVE_{it} + \alpha_4 AQUALITY_{it} + \alpha_5 CRISIS_{it} * PROFIT_{it} + \alpha_6 GDP_{it} + \alpha_7 HPI_{it} + \alpha_8 DISPOSAL_{it} + \alpha_9 SIZE_{it} + e_{it}$$

Since it is normal to expect many observations to have zero values for asset write-offs, the Tobit method is considered for use. A Tobit regression was used to deal with both, the probability of incurring a write-off and the magnitude of the write-offs. Kennedy (1998) suggests that if the dependent variable is limited (in the presence of many observations at 0), the ordinary least squares(OLS) estimates are biased. The Tobit regression procedure contains the elements of regression and probability of being above the limit (probit). In the canonical Tobit model, the data are censored in the left at zero, while uncensored in the right.

4. Results

The descriptive statistics of continuous variables used in the regression are presented in Table 3. The average fixed asset write-offs is 0.4 per cent from previous year's total assets and the maximum level is at 24 per cent. Some non-normality of the distribution is expected as some observations reported zero values (non-write off firms). Therefore, we used Tobit regression to deal with this problem.

Table 3. Descriptive statistics of continuous variables (n = 5,528)[a]

Variables	Mean	Median	Min	Max	S.D.
FAWO	0.004	0.000	0.000	0.240	0.021
PROFIT	0.044	0.057	-0.665	0.297	0.125
MVEBVE	2.183	1.387	-9.719	34.936	3.491
GDP	5.732	8.500	-7.400	10.000	5.556
HPI	4.705	4.700	-9.400	25.500	8.683
DISPOSAL	0.002	0.000	0.000	0.090	0.009

[a] Variables are defined in Table 2.

Results in Table 4 suggest that fixed assets write off (FAWO) is negatively associated with firm profitability (PROFIT), and the economic indicators, GDP and HPI. The results also confirm the economic intuition that firm profitability is positively associated with the two economic indicators.

Table 4. Correlation analysis (N = 5,528)[a]

	PROFIT	MVEBVE	AQUALITY	CRISIS	GDP	HPI	DISPOSAL	SIZE
FAWO	-0.310**	-0.060**	-0.007	0.004	-0.129**	-0.128**	0.051**	-0.014
PROFIT		0.146**	0.061**	0.035	0.235**	0.249**	0.023	0.025
MVEBVE			0.020	-0.024	0.199**	0.177**	0.001	0.116**
AQUALITY				-0.061**	-0.001	0.025	0.029*	0.001
CRISIS					0.020	0.023	0.016	-0.032
GDP						0.771**	-0.012	-0.018
HPI							-0.042**	-0.020
DISPOSAL								0.078**

[a] *, ** denote significance at the 0.05 or 0.01 level (two-tailed). This study assesses the association between two continuous variables using Pearson correlation coefficient and the association between a continuous variable and a binary variable using point bi-serial correlation (Welkowitz et al. 1991).

The correlation table also shows that the highest correlated variable is between GDP and HPI (with a correlation coefficient of 0.771). This is not surprising since the demand for houses that determines the house price index is very much dependent on the economic cycle indicated by the GDP. This high relationship between variables used as independent

Table 5. The impact of economic crisis on asset write-offs

Dependent variable: *FAWO*

Independent variable	(1)[a] Whole sample (n=5,528) Coefficient (Z-statistic)	(2)[b] Whole sample (n=5,528) Coefficient (Z-statistic)
Intercept	-0.003*- (-1.787)	-0.003* (-1.813)
PROFIT	-0.070*** (-18.044)	-0.073***- (20.414)
MVEBVE	-0.490×10^{-3}*** (-3.457)	-0.489×10^{-3}*** (-3.454)
AQUALITY	-0.002* (-1.799)	-0.002* (-1.729)
CRISIS*PROFIT	-0.018** (-2.021)	-
GDP	-0.826×10^{-4} (-0.634)	-0.848×10^{-4} (0.651)
HPI	-0.576×10^{-3}*** (-6.411)	-0.579*** (-6.435)
DISPOSAL	0.252*** (5.143)	0.253*** (5.157)
SIZE	0.183×10^{-3} (0.636)	0.187×10^{-3} (0.652)
Adj-R²	0.079	0.077

[a] *, **, and *** denote significance at the 0.10, 0.05 or 0.01 level (one-tailed).

variables may cause collinearity problem. Therefore, we tested for the collinearity problem of the regression by examining the Variance Inflation Factor and dealt with the problem in sensitivity analysis.

The model converged after six iterations. Results presented in column (1) and (2) of Table 5 consistently show a negative relationship between profit as well as market value of firms and assets write-off. This implies that the higher the profit or the market value of a firm, the lower the probability and the magnitude of asset write-offs. This is consistent with the signalling hypothesis, that is, managers use accounting policy choices to signal private information. In other words, current deterioration of profit or market value could be an indication of future deterioration of performance and cash generating ability of the assets. Hence, firm managers write-off more assets' value to reflect less cash generating ability of the assets in the future than was initially expected. Similarly the coefficient for *MVEBVE* is also significant, hence H₁ is accepted. Results presented in Table 5 also indicate that asset write-offs are positively related to disposal of assets and negatively related to housing price index. It is also found that audit quality is (marginally) negatively related to asset write-offs. This finding may be due to higher quality audit results in more conservative

reporting. However, the size of firms and the general domestic product as control variables are not significantly related to write-offs.

Table 5 column (1) shows that the interaction variable between *CRISIS* and *PROFIT* is significantly negative at conventional level (-0.018, $p < 0.05$) while the coefficient on *PROFIT* alone is significantly negative (-0.070, $p < 0.01$). The adjusted R^2 is marginally increased. Since *CRISIS* is a dummy variable for the crisis period, the coefficient for profit in the crisis period is the sum of the two coefficients (-0.088), while the coefficient for profit in the non-crisis period is -0.070. The results indicate that the relation between performance and fixed asset write-offs is strengthened (more negative) during the crisis. This result is unexpected. In H_2 we hypothesised that the relationship between performance and asset write-offs is weakened during the crisis because, on average, firms would take the opportunity to write-off assets regardless of their performance level. Moreover, firms with a wider profit base would write-off more assets than firms with a smaller profit base, such that after write-offs, the firms would still record a profit.

However, the role of that crisis that strengthened the relationship between performance and asset write-offs could be explained by the loss avoidance argument (Burgstahler and Dichev 1997; Norman *et al.* 2005). We predicted that in a normal economic condition, firms near to zero profit would have less incentive to write-off assets because the penalty by the market is high. The event of asset write-offs may be deferred to a period when the profit base is large enough to cushion write-off value. However, during a crisis period, firms near to zero profit may not have to defer asset write-offs since firm managers can blame the crisis period for recording a loss. We investigated this issue further by running a separate regression for crisis and non-crisis periods. We also included a dummy variable *AVOIDLOSS* for 1 per cent of firms that recorded just above zero profit. For this, we sorted the data according to *PROFIT* and gave a score of 1 for 56 profitable firms that were almost near to zero. The results are presented in Table 6.

We focus on the coefficient of the interaction between *AVOIDLOSS* and *PROFIT*. The interaction coefficient is positive and significant at conventional level for the whole sample and non-crisis sample regressions. This implies that the relationship between profitability and asset write-offs is weakened (less negative) for the sample that avoided losses during the non-crisis periods. Loss avoiding sample firms tended to record less write-offs during the non-crisis period compared to the crisis period. During the crisis period, firms may write-off assets without considering the implications of recording a loss since the macro-economic condition is already bad. These results explain why the relationship between performance and write-offs is stronger during the crisis period (Table 5).

Table 6 also shows that different relationships existed between independent and dependent variables in the two economic climates. This may be due to the instability of the market and macro-economic condition during the economic crisis. A market measure for performance, *MVEBVE*, the housing price index (HPI) and disposal of assets became insignificant during the crisis. During the crisis period, the occurrence and the magnitude of asset write-offs can no longer be explained by conventional factors except for profitability.

4.1 Sensitivity Analyses

We mentioned about the possibility of the multi-collinearity problem in the correlation analysis presented earlier, due to a high correlation between *HPI* and *GDP* variables. To test

Table 6. The impact of avoiding losses incentive on asset write-offs

Dependent variable: *FAWO*

Independent variable	(1) [a] Whole sample (n=5,528) Coefficient (Z-statistic)	(2) [a] Non-crisis sample (n=4,544) Coefficient (Z-statistic)	(3) [a] Crisis sample (n=983) Coefficient (Z-statistic)
Intercept	-0.003* (-1.810)	-0.005*- (-2.518)	0.012*** (4.606)
PROFIT	-0.073*** (-20.427)	-0.070*** (-18.078)	-0.059*** (-10.029)
MVEBVE	-0.486 x 10⁻³***	-0.402 x 10⁻³***	-0.286 x 10⁻³
	-0.486×10^{-3}*** (-3.432)	-0.402×10^{-3}*** (-2.699)	-0.286×10^{-3} (-1.098)
AQUALITY	-0.002* (-1.748)	-0.001 (-0.520)	-0.001 (-0.427)
AVOIDLOSS **PROFIT*	0.992** (2.101)	1.039** (2.218)	-3.967 (-0.923)
GDP	-0.833×10^{-4} (-0.640)	-0.382×10^{-4} (-0.269)	-0.479×10^{-3}** (-2.435)
HPI	-0.578×10^{-3}*** (-6.432)	-0.644×10^{-3}*** (-6.492)	-0.530×10^{-4} (-0.437)
DISPOSAL	0.254*** (5.186)	0.273*** (5.083)	0.080 (1.047)
SIZE	0.179×10^{-3} (0.623)	-0.230×10^{-3} (-0.714)	-0.157×10^{-3} (-0.398)
Adj-R²	0.078	0.067	0.131

[a] *, ** , and *** denote significance at the 0.10, 0.05 or 0.01 level (one-tailed).

whether this problem is of particular concern, we repeated the regressions by dropping either *HPI* or *GDP* at one point in time. The results are qualitatively similar to the results presented in this paper, with *HPI* and *GDP* (alternately) significantly related to asset write-offs.

There is a concern that some non-normality in the data and outliers may have influenced the results. We ran rank transformed regressions (non-parametric) by transforming all continuous variables into ranks. This procedure will eliminate the outlier effect as well as does not require a normal distribution of the data. The results confirmed our conclusions.

5. Conclusions

In summary, the study found evidence that managers use fixed asset write-offs to signal private information regarding firm performance. Malaysian firms signalled current deterioration of profit or market value that could indicate future deterioration of performance and cash generating ability of the assets by writing off assets value. Additional analyses also show that in normal economic conditions, firms near to zero profit recorded less asset

write-offs compared to other firms. This implies that the event of asset write-offs may be deferred during the non-crisis period to a period when the profit base is large enough to cushion write-off value. However, this behaviour does not occur during the crisis period.

Results of this study may have several implications. First, users of financial information should be alert that managers have incentives to take a bath during the crisis period. The incentive is driven by lower market response to write-offs (Elliot and Shaw 1988) partly due to the fact that it is seen as an effort to turn around the company. Consistent with Norman *et al.* (2005), users should also be alert that during the non-crisis period, managers may defer write-offs particularly when their profit is near to zero. Secondly, the results in this study show that the move towards proper guidance on the measurement of asset impairment is timely. In the future, managers may have limited ability to write-off asset value due to more stringent requirements in the accounting standards on impairment of assets. A test on this is subject to future research.

Interpretation of the results found in this study is subject to several limitations. This study did not test the effect of changes in the standard on the behaviour of management. The new standard may have a positive impact on the signalling behaviour as the requirements for recognising an impairment of assets value are detailed. This study also did not investigate the use of alternative measures for signalling hypothesis. The signalling hypothesis could also be tested using future profitability measures such as one or two-year ahead return on assets or equity.

Finally, this study acknowledges that asset write-offs may also be related to changes in top management. Changes in top management are common in distressed firms (Gilson 1989; Murphy and Zimmerman 1993; and Mian 2001).[6] Prior studies have found greater frequencies of accounting policy changes (Moore 1973; La Salle *et al.* 1993), asset write-offs (Elliot and Shaw 1988) and income-decreasing abnormal accruals (Pourciau 1993) following management changes. This behaviour is consistent with the incentives of the new management, first, to blame low earnings on previous management, and second, to make a lower benchmark against which future earnings can be compared. Their success in turning around the distressed firm into a healthy looking firm will later be handsomely remunerated. This opportunistic view on the part of managers only has currency when a management compensation scheme is tied to reported earnings. Investigation into this issue requires a separate study, because it requires significant resources to be allocated in collecting top management changes data over a long time frame, the role of incoming and outgoing managers and a detailed description of top management compensation schemes in Malaysian corporations.

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[6]Warner *et al.* (1988) and Weisbach (1988) find that the changes in senior management are caused by firms' poor performance.

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