Issues arising with the implementation of AASB 139 Financial Instruments: Recognition and Measurement by Australian firms in the gold industry

Abstract

This paper investigates the impact of AASB139: *Financial Instruments, Recognition and Measurement* on the financial reporting of Australian firms in the gold industry. At issue is whether firms are able to comply with the exacting requirements contained in AASB 139 for hedge accounting and how this impacts firms' financial reports. Evidence is provided of hedging activities being restricted to larger firms, and for these firms only the larger firms were able to comply with the requirements of AASB 139 to account for these firms as cash flow hedges. Furthermore there is evidence that the income numbers for firms unable to account for their hedging activities as cash flow hedges having less relevance.

1. Introduction

This paper empirically investigates the impact of AASB139: *Financial Instruments, Recognition and Measurement*[1] on the financial reporting of Australian firms in the gold industry. At issue is whether firms are able to comply with the exacting requirements contained in AASB 139 for hedge accounting and how this impacts firms' financial reports. Specifically, are gold producers able to meet the requirements contained in AASB 139 to account for their hedges of gold price risk as cash flow hedges, with this reflecting the underlying economic substance of these transactions. Alternatively, are firms required to report their hedging activities on a fair value basis which does not reflect the economic substance of these transactions. If so, the concern is that this will adversely impact the relevance of the financial statements.

International harmonisation, the process of aligning national accounting standards with International Financial Reporting Standards (IFRS), has been one of the most significant changes in financial reporting to have occurred in recent years, and there has been much debate about the relative costs and benefits of this process. In the professional literature the focus has been on the costs of managing the transition and the practicality of implementing a complete set of 'new' accounting standards (e.g., The Australian Bankers' Association 2001, APRA 2004, and the Finance and Trade Association). At the same time academics have questioned whether the process of international harmonisation has delivered benefits such as, improving the quality and transparency of financial statements, and, enabling investors to better compare corporate performance (e.g. Armstrong, Barth, Jagolinzer, and Riedl 2007; Ahmed and Goodwin 2006; Barth, Landsman, and Lang 2006). A feature of the academic literature is that it has generally evaluated the impact of applying IFRS through cross sectional analysis, and maintains that the impact of IFRS adoption on financial reports is uniform both across regulations and across firms.

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[1] This is the Australian equivalent to IAS 39 issued by the IASB.

Probably as a consequence of this, the results are mixed. Accordingly, this paper looks at the impact of a specific regulation, AASB 139: *Financial Instruments, Recognition and Measurement,* in the context of the Australian gold industry. Critically, this industry identifies relatively homogeneous firms who undertake hedging activities, using comparable financial instruments, to protect themselves against a common exposure, gold price risk.

The motivation for this research is two fold. First, it provides insights into the application of AASB 139, highlighting a consequence of the technically complex nature of the hedge accounting provisions. The specific concern is whether the hedge accounting provisions are able to be operationalised by all firms. Second, if the requirements are excessively restrictive, are firms accounting for their hedging activities on a fair value basis, and has the relevance of the resultant financial reports been adversely impacted.

Empirical evidence from the Australian gold industry shows that at the time of transition to AASB 139 a number of firms stopped hedging activities. Furthermore, there is evidence that only large firms, with significant accounting capabilities, were able to account for their hedges as cash flow hedges. Smaller firms were more likely to account for there hedging activities on a fair value basis. This is not consistent with the economic substance of the transactions, and there was evidence that income numbers were less relevant for these firms.

The remainder of the paper is structured as follows. Section 2 provides an overview of the research on international harmonisation, and provides a technical analysis of the hedging requirements within AASB 139. This section also outlines the hypothesis investigated. Section 3 discusses the research design, while section 4 describes the sample firms. The results are presented in section 5 and the conclusions are provided in section 6.

2.   Theory development

Global capital markets have become increasingly integrated, and to enable accounting comparability many countries have sought to align their financial reporting regulations with those issued by the International Accounting Standards Board, a process referred to as international harmonisation. It generally maintained that if financial statements are prepared on the basis of a single set of globally agreed regulations this will ultimately enhance accounting quality by reducing diversity in accounting practices and potential market information asymmetries. More specifically, it is claimed that international harmonisation will reduce the cost of capital for new productive investments, and maintain a consistent information environment for all investors. Australia is typical of countries going through the harmonisation process and announced the intention to adopt IFRS in 2003, with implementation required for reporting periods commencing on or after 1 January 2005.[2]

Significant effort is now being directed to the determination of whether these benefits have been realised. Barth, Landsman and Lang (2006) are typical, and they provide evidence that across firms from 21 countries those applying international accounting standards generally reported higher quality accounting information. Furthermore, this result is robust to controls for pre-adoption differences in accounting quality. However, any finding of improved accounting quality arising from international harmonisation is likely to be conditional on pre-adoption accounting quality, and it is likely that this differs across countries. It is probably for this reason that Ahmed and Goodwin (2006) found little evidence that the quality of accounting information improved subsequent of transition, to the regulations based on IFRS for Australian firms. However, they did observe that the Australian firms provided additional information to facilitate the prediction of future operating cash flows.

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[2] Australian Tax Office, 2005, 'Australian International Financial Reporting Standards: Blue print for tax implications', Australian Government

Doubtless an issue in these papers, and other research on the harmonisation to international standards,[3] is the assumption that the impact of international harmonisation is consistent not only across countries, but also firms. This is unlikely to be the case, with some regulations only being applicable to a limited number of firms (e.g., IAS 41 *Agriculture*), while the impact of others will differ across firms. For example, the impact of IAS 12 *Income Taxes* will be conditioned by the nature of the firms operations and the tax regime(s) it operates under. Accordingly, it is likely that results will be sensitive to the countries and firms upon which the research is based. Furthermore, this only provides insights into the operation of the 'complete set' of regulations and does not consider aspects of particular regulations that may be problematic.

Reflecting this concern, this study focuses on the operation of a specific regulation. Accounting for financial instruments, and in particular hedge accounting was selected as IAS 39 *Financial Instruments, Recognition and Measurement* has been subject to much criticism (see Armstrong, Barth, Jagolinzer and Riedl, 2007). Many of these criticisms relate to the requirement to record derivative financial instruments at fair value, with any gains or losses generally recognised in the income statement immediately. There is only a limited exception with respect to hedges, however, it is claimed that the conditions attached to the use of this exception are prohibitive.

This is evaluated in the context of the Australian gold industry for a number of reasons. First, the major business risk which is common across these firms is gold price, and derivatives are used extensively to manage this risk. Doubtless this is influenced by the level of above ground resources which facilitate the operations of a highly liquid gold derivatives market. Second, the derivative instruments are homogeneous, being predominantly forward contracts for

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[3] For example, Jaafar & McLeay 2007; Boolaky 2006; Dargenidou et al. 2006; Daske & Gebhardt 2006; Barth et al. 2005; Daske 2006

the sale of gold production. Third, the Australian gold industry is made up of a material number of firms that exhibit a range of economic characteristics.

Prior to harmonisation the only regulation relating to financial instruments in Australia was AASB 1033 '*Presentation and Disclosure of Financial Instruments*'. As the name suggests this was concerned with ensuring adequate disclosure, but did not address issues of recognition and measurement. In the absence of specific rules, derivative financial instruments for gold producers were commonly held at historic cost, with the gains and losses not being realised until the period in which the hedged transaction occurred. In this way accounting effect was given to the economic substance of the transactions.

With international harmonisation IAS 39 *Financial instruments: Recognition and Measurement* was imported into the regulations governing financial reporting by Australian firms by the issuance of AASB 139. This standard was issued in conjunction with AASB 7 '*Financial Instruments: Disclosure'* and AASB 132 '*Financial Instruments: Disclosure and Presentation'*.[4] Collectively these provide a comprehensive regime for the treatment of financial instruments within financial statements.

The requirements in AASB 139 are very wide in scope, covering all financial instruments except where specifically covered by another standard.[5] All derivatives must now be classified as either financial assets or financial liabilities, and they must be recognised in the balance sheet

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[4] AASB 132 establishes the principles for presenting financial instruments as liabilities or equity and for offsetting financial assets and financial liabilities. It applies to the classification of financial instruments, from the perspective of the issuer, into financial assets, financial liabilities and equity instruments; the classification of related interest, dividends, losses and gains; and the circumstances in which financial assets and financial liabilities can be offset. Application of AASB 132 and AASB 139 began in the first annual reporting period after 1 January 2005 in the context of adopting all Australian equivalents to IFRS.

[5] a) Interests in subsidiaries, associates and joint ventures unless the applicable standards specify that they should be accounted for under AASB 139; b) Interests in leases, except for any related embedded derivatives in addition to the derecognition and impairment provisions of AASB 139 relating to lease receivables and payables; c) Assets and liabilities under employee benefit plans; d) The subsequent measurement of financial guarantees that provide for specified payments to be made to reimburse specified debtor defaults; and e) Loan commitments are excluded unless they can be settled net in cash or with another financial instrument, are designated as trading, or the entity has a past practice of selling the resulting loans shortly after origination.

at their fair value. Generally there is the immediate recognition of gains or losses in the income statement, however if specific requirements are satisfied there is provision for deferral of gains and losses for certain types of hedges.

Before a derivative financial instrument can be accounted for as a hedge the firm must satisfy the following conditions. First, AASB 139 requires firms to formally establish detailed documentation prior to the application of hedge accounting. Failure to set up this documentation will preclude hedge accounting being adopted, irrespective of how efficient the hedging strategy actually offsets risk. The precise documentary requirements are outlined in paragraphs 88(a), and AG119. In summary the documentation needs to clearly identify the hedging intention at the initiation of the transaction and provide a sufficient level of detail to enable a third-party to re-perform the hedge effectiveness testing at any time. Second, firms are required to establish that the hedging instruments employed are 'effective' in mitigating the hedged risk. Hedge effectiveness is a critical component to hedge accounting, and likely the most complex. It is the extent to which changes in fair value or cash flows attributable to a hedged risk are offset by changes in the fair value or cash flows of the hedging instrument.[6] AASB 139 does not specify explicitly what constitutes an acceptable method to measure hedge effectiveness, just that the method adopted will depend on the firm's risk management strategies.[7] The methods available range from intuitively straightforward to the mathematically sophisticated.[8] The more technical methods, which are likely to provide more accurate effectiveness measures, will be constrained by a firm's resource capacity.

Once a derivative financial instrument has been determined to be a hedge, it must be classified and this requires consideration of the nature of the hedged transaction. The hedged

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[6] AASB 139, 'Definitions Relating to Hedge Accounting'.
[7] AASB 139, Paragraph AG107
[8] Such tests include 'matched terms'; 'dollar offset', 'regression analysis or 'value at risk'. The latter two require quite sophisticated statistical analysis and need a healthy allocation of computing power

transaction can be classified as either a cash flow hedge, or, a fair value hedge. A cash flow hedge is a hedge of the exposure to variability in cash flows attributed to the hedged item. The hedged item can be a highly probable forecasted transaction or a balance sheet item that has variable cash flows. A fair value hedge is a hedge of the exposure to a change in fair value of a recognized asset, or liability, or of an unrecognized firm commitment attributable to a particular risk.[9]

For qualifying hedge transactions that are classified as cash flow hedges, the items hedged are recorded in the balance sheet at their fair value resulting in the recognition of either a derivative financial asset or a derivative financial liability. Any gains or losses on the hedging instrument are recognised directly in equity, until the hedged transaction occurs. When the hedge transaction occurs, the gain or loss is then recognised in the income statement.[10]

For qualifying hedges that are classified as fair value hedges, the hedging derivatives are again recognised in the balance sheet at their fair value. The contrast however, is the treatment of future fair value movements. From the date of recognition all fair value movements have to be recognised in the income statement immediately.[11] If the hedging instruments do not qualify for hedge accounting, possibly because they are unable to meet the requirements of the regulation, then the accounting treatment is similar to that of fair value hedgers where the fair value movements in the financial instruments must be taken to the income statement.

While the concern in this paper is whether firms are able to operationalise these requirements, it is first necessary to consider if there are differences across firms that undertake hedging and those that do not. Hedging has been recognised as a viable tool to protect and improve firm value there is evidence that it is the larger firms that are more likely to take on

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[9] http://www.wachovia.com/corp_inst/page/0,,7_23_1060_1183_1202,00.html
[10] AASB 139 paragraph 95
[11] AASB 139 paragraph 89

derivative positions for this purpose (e.g. Smith and Stulz 1985). [12] This is likely to be a consequence of the transactions costs associated with trading derivative financial instruments, and this suggests an initial evaluation of the economic characteristics of firms using derivative financial instruments for hedging in the current context. It is expected that hedging firms will be larger and with more resources available to support these activities, which is captured in the following hypothesis:

> H_1: *Company size is positively associated with hedging.*

In addition to there being transaction costs associated with hedging, there are also likely to be additional costs associated with accounting for them as hedges. To account for these transactions as hedges firms will be required to establish and maintain accurate documentation, to identify and monitor the hedged and hedging items, and conduct effectiveness testing. In all likelihood, firms will need to choose or build dedicated systems that maintain the underlying data, and automatically conduct effectiveness testing. Such systems by their nature are complex and cannot be designed and built easily or cheaply. [13] If firms are unable or unwilling to satisfy these requirements the derivative financial instruments must be accounted for at fair value through the income statement. Accordingly, it is expected that hedging firms will be larger and with more resources available to support these accounting requirements, which is captured in the following hypothesis:

> H_2: *For firms undertaking hedging activities, size is positively associated with the adoption cash flow hedge accounting and negatively associated with fair value accounting.*

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[12] Haushalter (2000) found a positive correlation between the decision to hedge and total assets. Mian (1996) observed hedging activities to be positively related to firms' economies of scale and that the costs associated with financial reporting requirements inhibit firms from cost effectively hedging. Nance, Smith and Smithson (1993) correlated firm size and hedging with the transaction costs associated with trading financial instruments. Dolde (1993) surveyed the significant resources required in an environment where hedge accounting was not regulated as such. The fixed costs associated with hedging back then were hypothesised to be enough to discourage smaller firms from hedging

[13] McDonnell, John., 2004, ' Hedge Accounting under IFRS', Accountancy Ireland

The nature of the hedged transactions for gold firms is such that they should be classified as cash flow hedges. A consequence of failing to meet the hedge accounting requirements is that they are accounted for on a fair value basis and unrealized gains or losses are reported in the income statement. This is problematic because these gains or losses are not being matched to the offsetting gains or losses of the hedged transaction and this is likely impact the relevance of income numbers. This is reflected in the following hypothesis:

H_3 :   *For firms undertaking hedging activities, income numbers for firms adopting cash flow hedge accounting have greater relevance than firms that adopted the fair value accounting.*

3.   Research Design

3.1   *Evaluation of hedging activity (H_1 and H_2)*

Attention is initially directed towards the evaluation of the differences between companies that undertake hedging activities and those that do not.   Then, for those firms undertaking hedging activities, the differences between those accounting for them as cash flow hedges and those accounting for them on a fair value basis are evaluated.   This will be undertaken with univariate (parametric and non parametric) tests of differences in the economic characteristics of firms.

As the concern expressed in the hypotheses is that undertaking hedging activities imposes significant costs on the firm, and that this is exacerbated for firms wishing to account for them as cash flow hedges, the economic characteristics considered are those which reflect the resources of the firm and these are considered on an aggregate basis (not per share). Accordingly, differences will be considered across the following accounting values: assets (TA), book value of equity (BVE), operating revenues (TR) and income before tax (INC). Additionally, the following market based indicators of the firm's ability to access resources are considered: market capitalization (MVE) and stock return (RET).

3.2   Evaluation of impact of accounting for hedging activities on the relevance of income numbers (H₃)

If the costs complying with the accounting regulations relating to hedges are an impediment to accounting for these transactions appropriately, and the accounting practices applied do not capture the economic substance of the transactions, it is expected that this will result in the accounting information being less relevant. This would be a consequence of the recognition of hedge gains and losses on hedges of forward sales in the income statement without the recognition of the offsetting gains and losses on the hedged transaction. It should be noted that the differences are confined to the income statements as all derivative financial instruments are recorded at fair value in the balance sheet.

Consistent with the extant literature (e.g., Kothari and Zimmerman, 1995) the relevance of accounting information is assessed through both price level and returns models. In these models stock price is used as a measure for the total information available about the firm, and the extent to which this is addressed by accounting information is assessed.

With the price level model, stock price is considered as a function of book value of equity and income. In this circumstance to allow for differences in the relevance of income across firms with different accounting practices for hedges, a dummy variable is introduced for firms accounting for hedges as cash flow hedges and this is interacted with income. To control for heteroscedasticity, all variables are scaled by the number of shares outstanding and the observations are truncated at three standard deviations. Accordingly, the model takes the following form:

$$P_{it} = \alpha_0 + \alpha_1 BVE_{it} + \alpha_2 INC_{it} + \alpha_3 CF_{it} + \alpha_4 INC_{it} \times CF_{it} + \alpha_j Controls_{it} + \varepsilon_{it} \qquad (1)$$

Where:

P_{it}	:	Share price for firm i, in year t, 3 months after the financial reporting year end.

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BVE_{it}	:	Book value of equity for firm i, in year t
INC_{it}	:	Income before tax and special items firm i, in year t.
CF_{it}	:	Dummy variable where: 1 = cash flow hedge accounting used to account for gold hedges by firm i, in year t; and 0 = fair value accounting was used to account for gold hedges by firm i, in year t

For the returns model, stock returns are considered a function of income and once again to allow for variation in the relevance of income across firms with different accounting practices for hedges, an interaction term is introduced for firms accounting for hedges as cash flow hedges, and this is interacted with income. Accordingly, the model takes the following form:

$$RET_{it} = \beta_0 + \beta_1 INC_{it} + \beta_2 CF_{it} + \beta_3 INC_{it} \times CF_{it} + \beta_j Controls_{it} + \varepsilon_{it} \qquad (2)$$

Where:

RET_{it} : Stock return for firm i, in year t, for year ending 3 months after financial year end

Other variables are as previously defined

Controls are likely necessary to control for non-linearity in the earnings – return relation (e.g., Basu, 1997), with this problem exacerbated by the proportion of firms in the sample reporting losses. Additionally controls are included for differences in the earnings – retrun relation across years.

4. Data collection and Sample Description

The sample was in the first instance selected from firms included in the gold industry listed on the Australian Stock Exchange. Due to the requirement for AASB 139 to be operational observations were was restricted to financial years beginning on or after 1 January 2005 and included financial years ending up to and including 30 June 2007. Financial information for these firms was obtained from the Aspect Huntley's Financial Database. A significant number of firms in this industry are gold explorers only, and would not be trading derivatives for hedging

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purposes. Accordingly, firms without operating revenues were deleted from the sample. This provided a sample of 84 firm year observations with data available.

Descriptive statistics for these firms are provided in Table 1. In Panel A total values are provided and this shows that there is considerable diversity in the size and performance (expressed in both market and accounting terms). For example, the largest firm has a market capitalisation (MVE) of \$33.673b, while the smallest has a market capitalisation of only \$\$4.791m. There is also considerable skewness in the data, evidenced by the divergence between mean and median values. For market capitalisation these values are \$1.706b and \$155.321m respectively. Similarly, stock returns range from -79.4% to 672.9%. Probably reflecting the rising price of gold the mean (median) return in the sector is 41.9% (20.0%). Descriptive statistics on a per share basis are presented in Panel B. Again this shows considerable variation and skewness.[14] Recognising the issues this creates in the regression based analysis, the data is truncated at three standard deviations for these tests.

The financial reports for sample firms were read to determine whether they undertook hedging activities, and if so, how they were accounted for. The results for this review are presented in Table 2. This shows that included in the full sample of 84 firm year observations were 49 (58.3%) instances of firms undertaking hedging activities. For those firm year observations where hedging activities were undertaken, only 32 (65%) accounted for any of those activities as cash flow hedges. It is notable that of the 35 firm year observations of firms not undertaking hedging activities, there was evidence in the last annual report issued prior to the implementation of AASB139, there is evidence of 8 (22.8%) firms undertaking hedging

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[14] In 2006, by the measure of total assets under management, the top 6 producers represented 94% of the producer market, and in 2007 this dropped to 93%. This heavy concentration highlights the specific need for non-parametric testing.

activities. This confirms the initial concerns that not only has AASB 139 changed firm accounting practices, but also financing practices.

5. Results

5.1 Evaluation of hedging activity (H_1 and H_2)

Attention is initially directed towards the issue of whether there are differences in the characteristics of firms undertaking hedging activities (H_1), and for those that undertake hedging activities, whether there are differences between those that account for them as cash flow hedges and those that account for them on a fair value basis (H_2). This is addressed with parametric and non parametric tests of differences across firm characteristics. Attention is directed towards measures of firm resources available to undertake hedging activities and account for them as cash flow hedges, and as such it focuses on firm size and profitability.

The results of the comparison of firms undertaking hedging activities with those that do not are provided in Table 3. Consistent with expectation there is evidence that firms undertaking hedging activities have greater with total assets (TA) (t-test=2.286, p=0.025, Man-Whitney =5.081, p=0.000), book value of equity (BVE) (t-test=1.776, p=0.079, Man-Whitney =2.023, p=0.043), revenues (REV) (t-test=2.361, p=0.021, Man-Whitney =5.680, p=0.000) and market capitalisation (MVE) (t-test=2.335, p=0.022, Man-Whitney =3.330, p=0.001). This provides support for H_1, and firms undertaking hedging activities being larger with more resources available to support these activities. Interestingly, there is no evidence of performance differences across these firms and it is notable that there is weak evidence of the returns for non hedges being greater than that of hedgers. This is likely a consequence of significant rise in the value of gold over the test period.

For those firms that undertook hedging activities a comparison was made between those accounting for them as cash flow hedges and those that do not, with the results presented in Table 4. Consistent with expectation there is evidence that firms accounting for hedging activities on a cash flow basis have greater total assets (TA) (t-test=1.726, p=0.091, Man-Whitney =2.510, p=0.012) and market capitalisation (MVE) (t-test=1.841, p=0.072, Man-Whitney =2.321, p=0.020). There is also weak evidence of these firms having larger book value of equity (BVE) (t-test=1.385, p=0.173, Man-Whitney =1.943, p=0.052). While mean (median) values of revenues, and income are higher for firms accounting for hedging activities as cash flow hedges, these differences are not significant. Accordingly there is support, albeit more limited, for H2 and firms accounting for hedging activities as cash flow activities being larger and having greater resources available to enable compliance with compliance with the requirements of AASB139.

5.2   Evaluation of impact of accounting for hedging activities on the relevance of income numbers (H_3)

If is inappropriate to account for hedging activities on a fair value basis with gains or losses recognised immediately in the income statement, it is expected that this will reduce the relevance of the resultant income numbers.

In the first instance the relevance in income numbers was evaluated through price level regressions, with the results presented in Table 5. Attention is in the first instance directed to the last panel which shows the results for the full model with controls for loss firms and year end. Importantly, this shows that the co-efficient on income for firms accounting for hedges on a fair value basis is insignificant (α_2=1.904, t-stat=0.916), while the co-efficient identifying the incremental relevance of income for firms accounting for hedges as cash flow hedges is positive

and significant (α_4=10.291, t-stat=2.320). This result provides strong support for H3 and the relevance of income numbers for firms accounting for all hedges on a fair value basis being reduced. In the first two panels of Table 5 reduced forms of the model are estimated. This confirms that without controls for the accounting practices applied to hedge activities the resultant income numbers are not significant.

Attention is next directed towards the evaluation of income numbers through a returns regression, with the results presented in Table 6. It is notable in the full model that the co-efficient on income for firms accounting for hedges on a fair value basis is insignificant (β_1=-1.068, t-stat=-0.441), but the co-efficient identifying the incremental relevance of income for firms accounting for hedges as cash flow hedges while significant has the wrong sign (β_3=-1.636, t-stat=-2473). However, it is likely that this is a consequence of the stock returns largely reflecting the expected impact of increases in gold prices across the test period on the future profitability rather than current period profitability. Accordingly, while there is no support for H_3 with the returns model, this is most likely a consequence of the limitations of the model used.

6.   Conclusion

A concern with international harmonisation is how this has impacted the quality of financial reporting. This has generally been assessed having regard to the impact of the 'complete set' of regulations developed by the IASB. However, this study focuses more narrowly on issues surrounding the application of the regulation applying to the reporting of financial instruments. In Australia this is reflected in AASB 139 *Financial Instruments, Recognition and Measurement.*

Evidence is provided that subsequent to the implementation of AASB 139 larger firms were more likely to undertake hedging activities, and that for these firms only larger firms with

more resources were likely to account for them as cash flow hedges. Not to do so would be inconsistent with the economic substance of the transactions. This confirms the concern that the conditions required to be satisfied before the hedge accounting provisions of AASB 139 can be applied are prohibitive.

A consequence of firms applying accounting practices that are likely inconsistent with the economic substance of the transactions is that this is likely to reduce the relevance of the reported accounting information. Consistent with expectation there is evidence that the income numbers of firms that accounted for hedge transactions on a fair value basis had less relevance than firms accounting for such transactions as cash flow hedges. This identifies the reduced relevance of income numbers as a likely consequence of the prohibitive requirements contained in AASB 139.

References

To be completed

Table 1
Descriptive Statistics for Gold Producers

Descriptive statistics for the variables used in this study. Panel A reports the statistics on a total basis while Panel B reports t he results on a per share basis.

Panel A: Total Values (n=84)					
	Mean	Median	Std Dev	Min	Max
TA	1,061,889,158	126,581,376	3,422,890,280	4,697,883	19,715,657,778
TL	535,326,822	38,043,833	1,583,893,619	792,609	7,661,169,415
BVE	526,555,489	47,605,020	2,043,460,775	-224,507,576	13,187,160,369
REV	401,108,410	20,966,596	1,323,837,350	14,191	8,574,894,036
INC	52,703,974	-3,600,672	298,203,406	-218,072,781	2,056,110,198
NPAT	18,766,430	-3,125,129	162,257,812	-249,420,744	999,620,877
MVE	1,706,606,626	155,321,101	5,240,857,145	4,791,520	33,673,000,000
RET	0.419	0.200	1.015	-0.794	6.729

Panel B: Per Share Values (n=84)					
	Mean	Median	Std Dev	Min	Max
TA	1.367	0.471	2.629	0.037	13.832
TL	0.773	0.175	2.007	0.002	12.239
BE	0.593	0.299	0.933	-0.276	5.375
REV	0.566	0.098	1.158	0.000	6.813
INC	0.051	-0.015	0.407	-0.522	3.300
NPAT	0.031	-0.013	0.348	-0.511	2.488
P	2.379	0.610	4.812	0.040	28.000

Where:

TA_{it} : Total assets of firm i, in year t

TL_{it} : Total liabilities of firm i, in year t

BVE_{it} : Total book value of equity for firm i, in year t

REV_{it} : Total revenue of firm i, in year t

INC_{it} : Earnings before tax for firm i, in year t

$NPAT_{it}$: Total net profit for firm i, in year t

MVE_{it} : Market value of equity taken 3 months after financial year end for firm i, in year t

P_{it} : Share price three months after financial year end for firm i, in year t

Table 2
Sample Firms Hedging Activities and Accounting Practices

From a review of financial reports sample firms were classified according to their hedging behaviour, distinguishing between those that undertook hedging activities and those that did not. For those with hedging activities, those that accounted so those activities as cash flow hedges were identified.

	No. Observations	
Hedgers		
Fair value accounting	17	
Combination	20	
Cash flow hedge accounting	12	
		49
Non-gold hedgers		35
Total Firms		84

Table 3
Evaluation of Hedging and Non Hedging Firms

Evaluation of the financial characteristics (i.e., total assets, book value of equity, revenues, market capitalisation and stock returns) of hedging and non hedging firms.

	Mean		Median		t-test	p value		Man-Whitney	p value	
	Hedger	Non Hedger	Hedger	Non Hedger						
TA	1,770,000,000	76,574,553	171,000,000	37,868,960	2.286	0.025	**	5.081	0.000	***
BVE	857,000,000	63,979,292	76,346,000	30,011,517	1.776	0.079	*	2.023	0.043	**
REV	682,000,000	8,223,199	92,532,000	3,891,269	2.361	0.021	*	5.680	0.000	***
INC	96,969,023	-9,267,094	-7,358,593	-3,356,257	1.626	0.108		0.200	0.842	
MVE	2,810,000,000	167,000,000	304,000,000	101,000,000	2.335	0.022	**	3.330	0.001	**
RET	26.1%	63.9%	13.3%	22.5%	1.698	0.093	*	1.334	0.182	

All variables as previously defined

* : Significant at 10% level
** : Significant at 5% level
*** : Significant at 1% level

Table 4

Evaluation of Firms Accounting for Hedges on Cash Flow Basis and Fair Value Basis

Evaluation of the financial characteristics (i.e., total assets, book value of equity, revenues, market capitalisation and stock returns) of firms accounting for hedges on a cash flow basis and on a fair value basis.

	Mean		Median		t-test	p value		Man-Whitney	p value	
	Cash Flow	Fair Value	Cash Flow	Fair Value						
TA	2,530,000,000	319,000,000	249,000,000	93,072,000	1.726	0.091	*	2.510	0.012	**
BE	1,230,000,000	148,000,000	108,000,000	34,464,000	1.385	0.173		1.943	0.052	*
REV	949,000,000	178,000,000	107,000,000	78,807,000	1.547	0.129		1.040	0.299	
INC	133,000,000	29,607,085	-1,269,301	-11,087,004	0.891	0.378		0.956	0.339	
MVE	4,050,000,000	457,000,000	426,000,000	103,000,000	1.841	0.072	*	2.321	0.020	**
RET	27.9%	22.9%	22.7%	-7.9%	0.232	0.818		1.250	0.211	

All variables as previously defined

*	:	Significant at 10% level
**	:	Significant at 5% level
***	:	Significant at 1% level

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Table 5
Price Level Regression

Evaluation of the relevance in income numbers for firms undertaking hedging activities. The difference in relevance of income numbers for firms accounting for these transactions as cash flow hedges as opposed to a fair value basis is captured through the interaction of income and a dummy variable adopting the value 1 if the firm accounts for hedge transactions as cash flow hedges (n=46).

Variable	Coefficient (t-stat)		Coefficient (t-stat)		Coefficient (t-stat)	
Constant	0.572		0.438		-2.831	
	(0.722)		(0.317)		-(1.711)	*
BVE_{it}	3.901		4.204		3.649	
	(5.116)	***	(3.703)	***	(3.470)	***
INC_{it}	0.402		0.134		1.904	
	(0.255)		(0.061)		(0.916)	
ACF_{it}					3.239	
					(2.326)	**
$INC_{it}*ACF_{it}$					10.291	
					(2.320)	**
$Loss_{it}$			0.440		2.206	
			(0.248)		(1.296)	
$INC_{it}*Loss_{it}$			2.119		-7.529	
			(0.190)		-(0.709)	
$Yearend_{it}$			-0.716		-1.757	
			-(0.457)		-(1.154)	
Adjusted R^2	0.495		0.462		0.558	
F statistic	23.574		8.909		9.282	
Significance	0.000	***	0.000	***	0.00	***

Where:

$$P_{it} = \alpha_0 + \alpha_1 BVE_{it} + \alpha_2 INC_{it} + \alpha_3 CF_{it} + \alpha_4 INC_{it} \times CF_{it} + \varepsilon_{it} \qquad (1)$$

All variables are as previously defined

*	:	Significant at 10% level
**	:	Significant at 5% level
***	:	Significant at 1% level

Table 5
Returns Regression

Evaluation of the relevance in income numbers for firms undertaking hedging activities. The difference in relevance of income numbers for firms accounting for these transactions as cash flow hedges as opposed to a fair value basis is captured through the interaction of income and a dummy variable adopting the value 1 if the firm accounts for hedge transactions as cash flow hedges (n=46).

Variable	Coefficient (t-stat)		Coefficient (t-stat)		Coefficient (t-stat)	
Constant	0.350	***	0.446	***	0.948	***
	(3.308)		(2.580)		(2.708)	
INC_{it}	0.634	**	0.400		-1.068	
	(2.449)		(1.453)		-(0.441)	
ACF_{it}					-0.418	
					-(1.636)	
$INC_{it}*ACF_{it}$					-2.473	***
					-(2.582)	
$Loss_{it}$			-0.363	*	-0.426	
			-(1.659)		-(1.521)	
$INC_{it}*Loss_{it}$					3.837	
					(1.408)	
$Yearend_{it}$			0.330			
			(1.538)			
Adjusted R^2	0.098		**0.157**		0.226	
F statistic	5.998	**	3.862		3.244	***
Significance	0.018		0.016		0.011	

Where:

$$RET_{it} = \beta_0 + \beta_1 INC_{it} + \beta_2 CF_{it} + \beta_3 INC_{it} \times CF_{it} + \varepsilon_{it} \qquad (2)$$

All variables are as previously defined

    *   : Significant at 10% level
    **   : Significant at 5% level
    *** : Significant at 1% level