THE USEFULNESS OF OPERATING CASH FLOW INFORMATION: DOES FORMAT MATTER?

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Abstract

This study investigates whether the direct method of presenting cash flows from operations is superior to the indirect method in its ability to forecast future cash flows. It also considers the effect of industry characteristics on the relative usefulness of direct and indirect methods of cash flow presentation. The study, which uses a sample of Australian firms, finds that both the direct and indirect methods improve the forecast of future cash flows. However, the indirect method of reporting cash flows from operations is more relevant than the direct method in predicting future cash flows. Evidence from the industry-level analysis overall reinforces the main results.

Keywords: Cash flows, Direct Method, Indirect Method, Predicting Future Cash Flows

JEL Classification: M41

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1. Introduction

The reporting of cash flows is of much interest to investors, analysts, accounting standard setters, and preparers of financial statements. However, given the two alternative methods of cash flow disclosures (direct and indirect methods), there is a constant concern about the presentation of cash flow statements. Accounting standard setters, in particular the International Accounting Standard Board (IASB) and the Financial Accounting Standard Board (FASB), allow firms to report cash flow statements using either the direct or indirect method, but they state a preference for the direct method. From their point of view, the direct method is beneficial in assessing a firm's future cash flows (FASB, 1987, para. 29; International Accounting Standard Committee, 1992, para. 18). Financial statement users (e.g., analysts, lenders, and investors) generally have the same opinion and advocate the mandatory use of the direct method (e.g., Jones and Widjaja, 1998; FASB, 1987, para. 111, CFA, 2009). However, in spite of this preference for the direct method, in practice, most firms adopt the indirect method. In effect, many preparers have expressed concern over the direct method disclosures. Their primary complaint is that the cost and complexity of preparing direct cash flow statements exceed the perceived benefits (e.g., FASB, 1987, para. 113; Wallace et al., 1997, Krishnan and Largay, 2000).

Despite the above arguments, current practice is about to enter a new phase, as the FASB and IASB are currently debating a joint project on financial statement presentation that also addresses the issue of the presentation of cash flow from operations. Accordingly, firms would be required to present direct cash flow statements and report the indirect cash flow components separately in the notes to the financial statement (IASB, 2008). This would be a significant departure from the current standards' position; the direct method is given a more important role, and the indirect method takes on an ancillary role, limiting the indirect cash flow disclosures to notes only. However, if the usefulness of the indirect method is higher than or even comparable with the direct method, restricting it to notes may reduce the overall usefulness of the cash flow statements. This is an empirical question, yet to be answered.

Accordingly, this study addresses the following research question: Does the direct method of presenting cash flows from operations have greater ability in predicting future cash than the indirect method?

Thus far, prior research on the relative usefulness of the direct and indirect methods of presenting cash flows from operations is scarce and has mostly provided evidence that direct method cash flow components have higher ability than aggregate cash flow from operations in predicting future cash flows and future earnings and explaining stock returns (Farshadfar and Monem, 2012a; Arthur et al., 2010; Cheng and Hollie, 2008; Clinch et al., 2002). Previous studies also address the *supplementary role* of indirect cash flow information in cash flow statements and document that indirect accrual components have incremental ability in explaining stock returns, earnings or future cash flows over and above the direct method cash flow components (e.g., Farshadfar and Monem, 2012b; Arthur et al., 2010; Cheng and Hollie, 2008; Orpurt and Zang, 2009; Clinch et al., 2002). Krishnan and Largay (2000) appears to be the only study that considers a main role for both indirect and direct cash flow information; they compare the predictive abilities of the direct and indirect cash flow presentation in the US setting. Using a small sample of 405 firm-year observations between 1988-1993, they find that the direct method of cash flow presentation is more useful than the indirect method in predicting future cash flows. However, generalising these results to other capital market settings is difficult because of 'self-selection bias' arising from choices adopted by SFAS 95 (e.g., Clinch et al., 2002; Orpurt and Zang, 2009).

This study re-examines this issue using Australian data rather than US data. This is because Australian firms were required to present direct method cash flow information under Australian Accounting Standards Board (AASB) 1026: Statement of Cash Flows (AASB, 1991, revised 1997).[3] Therefore, this study is not subject to self-selection bias or significant measurement errors resulting from the estimation of direct method cash flow information as previous US studies have been (e.g., Krishnan and Largay, 2000; Orpurt and Zang, 2009).

To investigate the research question, a sample of 348 Australian firms over 1992–2004 is analyzed. Two least squares (OLS) regression models are employed on pooled time-series of cross-sectional data. The results of the within-sample and out-of-sample analyses suggest that both direct and indirect methods of presenting cash flow enhance the predictability of aggregate cash flow from operations for future cash flows. However, indirect method cash flow information has a higher ability to forecast future cash flows than direct method cash flow data do. Further, categorization of the sample based on industry sectors indicate that the findings are not influenced by industry groupings.

This study extends the literature by providing direct evidence for the relative abilities of the direct and indirect formats of presenting cash flow from operations for future cash flows using *actual* direct cash flow information. In addition, the current research investigates the effect of industry characteristics on the relative usefulness of direct and indirect methods of cash flow presentation. An industry-level analysis provides further insight into whether there is any cross-sectional variation among industries in terms of the predictive ability of cash flow information.

The remainder of the paper is organized as follows: section 2 reports the research design; section 3 reviews the sample selection, and descriptive statistics; section 4 discusses the main results; in sections 5 and 6, the industry effects and additional analyses are reported, respectively; and section 7 concludes the paper.

2. Research design

To address the research question, the following OLS regression models based on a pooled time-series, cross-sectional regression are estimated.

$$\text{Model}(1):\ CFO_{it} = \alpha_0 + \alpha_1 CASHRD_{it-j} + \\ + \alpha_2 CASHPD_{it-j} + \alpha_3 INTPD_{it-j} + \\ + \alpha_4 TAXPD_{it-j} + \alpha_5 CASHOTH_{it-j} + \varepsilon_{it}$$

$$\text{Model}(2):\ CFO_{it} = \beta_0 + \beta_1 EARNS_{it-j} + \\ + \beta_2 \Delta AR_{it-j} + \beta_3 \Delta INV_{it-j} + \\ + \beta_4 \Delta AP_{it-j} + \beta_5 DEP_{it-j} + \\ + \beta_6 TAXACC_{it-j} + \beta_7 ACCOTH_{it-j} + \varepsilon_{it}$$

where *i* and *t* denote firm and year respectively and *j* ranges from 1 to 2. *CFO* is net cash flows from operating activities as disclosed in the cash flow statement; *EARNS* is earnings after tax before extraordinary items; ΔAP is change in accounts payable during the year; ΔAR is change in accounts receivable during the year; ΔINV is change in inventory during the year; *DEP* is depreciation and amortisation expenses; *TAXACC* is accruals in relation to income tax expense (for example, change in income taxes payable and deferred tax liability/assets) calculated as income tax expense minus tax paid, reported under the cash flow statements; *ACCOTH* is other accruals determined as $ACCOTH=EARNS-CFO-(\Delta AR+\Delta INV-\Delta AP-DEP-TAXACC)$; *CASHRD* is cash received from customers; *CASHPD* is cash paid to suppliers and employees; *INTPD* is net interest paid; *TAXPD* is taxes paid and *CASHOTH* is other cash flows from operations.

The selected variables are consistent with those used by Clinch et al. (2002) and Barth et al. (2001). To evaluate the relative usefulness of the direct and indirect methods of cash flow presentation, the predictive ability of model (1) is compared with that of model (2). The adjusted R^2 is measured to compare the within-sample explanatory power of the models for the period 1992-2001. In model selection, one with a higher measure of adjusted R^2

[3] This standard was withdrawn in January of 2005 and replaced by *AASB 107: Cash Flow Statements* (AASB, 2004), which is equivalent to *IAS 7: Cash Flow Statements* (IASC, 1992).

is preferable (Gujarati, 2003). Vuong's (1989) likelihood ratio test is used for non-nested model selection to determine which of the competing models best explains the data (see Dechow, 1994, Appendix 2). White (1980)'s heteroscedasticity-consistent variances and standard errors is also used to take into account cross-equation correlation and heteroscedasticity in each cross-section.

Theil's *U*-statistic is estimated to determine forecast accuracy, as per Kim and Kross (2005). The hold out sample is 2002-2004. This forecast error measure can be separated into three proportions: bias, variance, and covariance. The covariance proportion is larger than the bias and variance proportions in a good forecast. The measure of this error metric falls between zero (prefect fit) and one (predictive ability at its worst) (e.g., Pindyck and Rubinfeld, 1998).

3. Characteristics of data

3.1 Sample selection

The current study analyses data gathered from firms listed on the Australian Stock Exchange (ASX) via *Aspect Financial Analysis* database from 1992 to 2004. The sample period begins from 1992 as firms were required to prepare the Statement of Cash Flows under *AASB 1026* for financial years ending on or after 30 June 1992. The sample ends in 2004 because Australia adopted the IFRS as of 1 January 2005. The sample criteria require that each firm must have data for the entire test period. Furthermore, firms in the Financials sector (Global Industry Classification Standard (GICS) Code 4010–4040) have been excluded since their financial statements are subjected to specific accounting regulations. Accordingly, our total primary sample contains 4,537 firm years representing 349 firms. 17 observations are diagnosed and excluded from the total sample as outliers using Cook's distance.[4] This reduces the total sample to 4,520 firm-year observations representing 348 firms. All variable measures are scaled by the number of common shares outstanding to mitigate heteroscedasticity, as per Krishnan and Largay (2000).

For the industry analysis, the companies are classified into industry sectors based on the two-digit GICS code. To be included in the industry analysis, each industry sector must have been represented by at least ten companies. Therefore, Telecommunication Services and Utilities with six and three firms are excluded. The industry composition of the sample is displayed in Table 1.

As can be seen, the sector with the most sample firms is Materials, which is a dominant industry sector in the Australian capital market, followed by the Consumer Discretionary and Industrials sectors.

Industry sector is defined by two digit GICS code as follows: Energy (10), Materials (15), Industrials (20), Consumer Discretionary (25), consumer staples (30), Health Care (35), Information technology (45), and Telecommunication services (50).

3.2 Descriptive statistics

Table 2 presents descriptive statistics on the properties of *EARNS*, *CFO*, and various selected accruals and cash flows components. The magnitudes of both the mean and the median of *CFO* ($0.18, $0.00) are larger than those of *EARNS* ($0.08, $-0.00). This is due to the non-cash expenses such as depreciation and amortisation items that often are excluded from *CFO* under the requirements of the cash flow statement. Furthermore, the standard deviation of *CFO* (0.47) is higher than that of *EARNS* (0.38), implying that accruals are able to smooth out a significant portion of *CFO* variability. *DEP* has higher values of mean and median than those of selected current accrual components (i.e. ΔAP, ΔAR, and ΔINV). However, it is less variable in comparison to current accrual components, in particular ΔAP and ΔAR.

Distributional statistics for the five components of *CFO* reveal that the mean (median) of *CASHRD* and *CASHPD* are $2.57 ($0.15) and $2.34 ($0.14), respectively, which is much larger than the other three components of cash flows –*TAXPD*, *INTPD*, and *CASHOTH*. The standard deviations of *CASHRD* and *CASHPD* are 6.53 and 6.23, respectively, which are the highest in comparison to other three components. This implies that the forecast power of cash flow from operations would be mostly affected by these two components.

Table 3 Panel A reports Pearson and Spearman correlations among *CFO*, *EARNS*, and accrual components. There is a positive and significant relationship between *CFO* and *EARNS* with Pearson (Spearman) correlation of 0.52 (0.69).

[4] The regression models are re-estimated by removing the observations with extreme upper and lower 1% of earnings and cash flows from operations. The results are not influenced by their exclusion.

Table 1. Sample composition by industry sector

Industry Sector	Number of Firms
Energy	33
Materials	141
Industrials	54
Consumer Discretionary	54
Consumer Staples	24
Health Care	18
Information Technology	16
Telecommunication Services	6
Utilities	3
Total	349

Table 2. Descriptive statistics (sample of 4,520 firm-year observations, 1992-2004)

Variables	Mean	Median	Standard Deviation
EARNS	0.08	-0.00	0.38
Δ*AP*	0.02	0.00	0.26
Δ*AR*	0.03	0.00	0.24
Δ*INV*	0.02	0.00	0.21
DEP	0.09	0.01	0.20
TAXACC	-0.00	-0.00	0.09
ACCOTH	-0.21	-0.04	0.58
CFO	0.18	0.00	0.47
CASHRD	2.57	0.15	6.53
CASHPD	2.34	0.14	6.23
INTPD	0.02	0.00	0.12
TAXPD	0.04	0.00	0.12
CASHOTH	0.01	0.00	0.35

Variables are defined as follows: *CFO* is net cash flows from operating activities under the Statement of Cash Flows. *EARNS* is net income before extraordinary and discontinuing items. Δ*AP* is change in accounts payable during the year. Δ*AR* is change in accounts receivable during the year. Δ*INV* is change in inventory during the year. *DEP* is depreciation and amortisation expense. *TAXACC* is accruals in relation to tax expense calculated as income tax expense less *TAXPD*. *ACCOTH* is other accruals determined as *ACCOTH= EARNS-CFO-*(Δ*AR+* Δ*INV-*Δ*AP-DEP*). *CASHRD* is cash received from customers. *CASHPD* is cash paid to suppliers and employees. *INTPD* is net interest paid. *TAXPD* is taxes paid. *CASHOTH* is other cash flows from operations. All the variables are deflated by the number of ordinary outstanding shares. Both *EARNS* and *CFO* significantly positively correlated with accrual components (Δ*AP*, Δ*AR*, Δ*INV*, and *DEP*) and significantly negatively with *TAXACC* and *ACCOTH*.

Panel B of Table 3 presents the correlation matrix for the set of cash flow from operations and its five components. The correlation between *CFO* and *CASHRD* is positive and significant (Pearson: 0.44, Spearman: 0.70) while *CFO* is significantly and negatively correlated with *CASHPD* (Pearson: -0.40, Spearman: -0.60), *INTPD* (Pearson: -0.11, Spearman: -0.44), and *TAXPD* (Pearson: 0.58, Spearman: -0.61). Both *CASHRD* and *CASHPD* variables are significantly related to *INTPD* and *TAXPD*. In addition, the Pearson (Spearman) correlation between *CASHRD* and *CASHPD* is -0.99 (-0.94), which is the highest of the correlations shown in the table. This suggests the possible presence of severe multicollinearity, which is likely to affect the related results. This issue will be fully discussed in Section 6.

Table 3. Correlation matrix

Panel A: Correlation matrix between earnings, cash flow from operations, and accruals

Variable	*EARNS*	*CFO*	*ΔAP*	*ΔAR*	*ΔINV*	*DEP*	*TAXACC*	*ACCOTH*
EARNS		0.52†	0.09†	0.17†	-0.11†	0.12†	-0.23†	-0.04†
CFO	*0.69*†		0.19†	0.16†	0.07†	0.23†	-0.26†	-0.46†
ΔAP	*0.19*†	*0.20*†		0.59†	0.37†	0.04†	-0.14†	-0.04†
ΔAR	*0.29*†	*0.18*†	*0.4*†		0.39†	0.05†	-0.15†	-0.23†
ΔINV	*0.21*†	*0.10*†	*0.37*†	*0.25*†		0.03†	-0.09†	-0.24†
DEP	*0.53*†	*0.67*†	*0.21*†	*0.23*†	*0.15*†		-0.12†	-0.83†
TAXACC	*-0.58*†	*-0.60*†	*-0.21*†	*-0.24*†	*-0.16*†	*-0.66*†		0.16†
ACCOTH	*-0.32*†	*-0.65*†	*-0.15*†	*-0.30*†	*0.17*†	*0.73*†	*0.52*†	

Panel B: Correlation matrix between the components of cash flow from operations

Variable	*CFO*	*CASHRD*	*CASHPD*	*INTPD*	*TAXPD*	*CASHOTH*
CFO		0.44†	-0.40†	0.11†	0.58†	0.37†
CASHRD	*0.70*†		-0.99†	0.19†	0.50†	-0.04**
CASHPD	*-0.60*†	*-0.94*†		0.18†	0.48†	-0.02
INTPD	*-0.44*†	*-0.57*†	*0.51*†		-0.07†	0.03**
TAXPD	*-0.61*†	*-0.70*†	*0.68*†	*0.42*†		-0.18†
CASHOTH	*0.16*†	*0.09*†	*-0.14*†	*-0.06*†	*-0.07*†	

Pearson correlation coefficients are presented above the diagonal while *Spearman* correlation coefficients are shown below the diagonal. Variables are defined in Table 2. † Significant at level 0.01. ** Significant at level 0.05.

4. Main results

To compare the usefulness of the direct and indirect methods, the forecasting performance of models (1) and (2) is assessed. Table 4 reports the summary results of within-sample and out-of-sample forecasting tests for models (1) and (2) with one-year and two-year lag periods. For the one-year lag model (1), all variables including the intercept are significant at the 0.05 level or lower. The exception is *TAXPD,* which is not significant at any level. As expected, *CASHPD* and *INTPD* have negative sign while *CASHRD* has a positive sign. The coefficients of *CASHRD* (0.529) and *CASHPD* (-0.521) are greater than those of other variables indicating that these two variables are more important in the forecast of future cash flows compared to other direct method cash flow components. For the one-year-lag model (2), the coefficient for Δ*INV* is not statistically significant. The other variables are significant at 0.1 or lower. Except for Δ*AR*, *ACCOTH*, and Δ*INV*, which have negative signs, the other variables are positively related to future cash flows.

Panel A of Table 4 for the one-year-lag models shows that the adjusted R^2 for the direct model (model (1)) is 51.3%, which is lower than the adjusted R^2 for the indirect model (model (2)), which is 58.2%. The result of Vuong's test shows that the difference between the adjusted R^2s of model (1) and model (2) is significant at the 0.01 level (Z-statistic: 3.95).

Table 4. The relevance of the direct and indirect methods of presenting cash flow from operations in predicting future cash flows

$$\text{Model (1)}: \; CFO_{it} = \alpha_0 + \alpha_1 CASHRD_{it-j} + \alpha_2 CASHPD_{it-j} + \alpha_3 INTPD_{it-j} + \alpha_4 TAXPD_{it-j} + \alpha_5 CASHOTH_{it-j} + \varepsilon_{it}$$

$$\text{Model (2)}: \; CFO_{it} = \beta_0 + \beta_1 EARNS_{it-j} + \beta_2 \Delta AR_{it-j} + \beta_3 \Delta INV_{it-j} + \beta_4 \Delta AP_{it-j} + \beta_5 DEP_{it-j} + \beta_6 TAXACC_{it-j} + \beta_7 ACCOTH_{it-j} + \varepsilon_{it}$$

Panel A: Summary of results for within-sample forecasting tests (1992-2001)

Variables	One-Year Lag		Two-Year Lag	
	Model (1)	Model (2)	Model (1)	Model (2)
Intercept	0.030† (5.79)	0.008 (1.53)	0.034† (6.78)	0.128 (1.68)
CASHRD	0.529† (5.59)		0.568† (5.16)	
CASHPD	-0.521† (-5.25)		-0.561† (-4.93)	
INTPD	-0.358** (-2.32)		-0.585† (-2.50)	
TAXPD	0.174 (0.77)		0.197 (1.21)	
CASHOTH	0.623† (7.61)		0.599† (5.34)	
EARNS		0.538† (6.57)		0.565† (6.11)
ΔAR		-0.301† (-5.14)		-0.351* (-2.48)
ΔINV		-0.163 (-1.29)		-0.236 (-1.62)
ΔAP		0.268† (3.67)		0.249 (1.51)
DEP		0.720† (2.81)		0.773† (2.61)
TAXACC		0.409* (2.28)		0.262** (1.85)
ACCOTH		-0.222† (-5.73)		-0.322† (-2.98)
Adjusted R^2	51.3%	58.2%	48.1%	54.5%
Vuong's *Z*-statistic	n.a	3.95†	n.a	2.59†
N	3,131		2,783	

Panel B: Summary of results for out-of-sample forecasting tests (2002–2004)

	One-Year Lag		Two-Year Lag	
	Model (1)	Model (2)	Model (1)	Model (2)
Theil's *U*-statistic	0.34	0.31	0.36	0.34
Bias Proportion	0.00	0.00	0.00	0.00
Variance Proportion	0.12	0.01	0.04	0.01
Covariance Proportion	0.88	0.99	0.96	0.99
N	1042		1039	

i and *t* denote firm and year, respectively, and *j* = 1 and 2. Figures in parentheses denote *t*-statistics based on heteroscedasticity-consistent covariance matrix (White, 1980). Vuong's *Z*-statistic relates to Vuong's (1989) likelihood ratio test for model selection. A significant positive *Z*-statistic shows that the first model is rejected in favour of the second model. Variables are defined as in Table 2. N is the number of firm-year observations. † Significant at level 0.01. ** Significant at level 0.05. * Significant at level 0.10.

Panel B of Table 4 presents the results of the out-of-sample forecasting test over the period of 2002-2004. These results support the findings of the within-sample forecasting tests, shown in panel A of Table 4. The covariance proportion is higher than the variance and bias proportions for one-year-lag models (1) and (2). This implies that the two models are able to predict future cash flows.

However, the Theil's *U*-statistic decreases from 0.34 in equation (1) to 0.31 in equation (2). This reveals that the predictability of model (2) is higher than that of model (1) with respect to future cash flows. The results of within-sample and out-of-sample forecasting tests for two-year lag models (1) and (2) re-confirm the above findings.

The above findings underscore that disaggregating cash flow from operations based on both the direct and indirect methods improves the forecast of future cash flows. However, the indirect format of cash flows presentation is more relevant in predicting future cash flows than the direct format.

5. Industry effects

Table 5 presents within-sample and out-of-sample forecasting statistics for one-year- lag models (1) and (2) at the industry level. Coefficient results for model (1) exhibit that *CASHRD* and *CASHPD* are statistically significant at conventional level; however, the significance of the other components (*INTPD*, *TAXPD*, and *CASHOTH*) varies across industries.

Table 5. Industry analysis of the relative relevance of direct and indirect methods of presenting cash flow from operations in predicting future cash flows

$$\text{Model}(1):\ CFO_{it} = \alpha_0 + \alpha_1 CASHRD_{it-1} + \alpha_2 INTPD_{it-1} + \alpha_3 TAXPD_{it-1} + \alpha_4 CASHOTH_{it-1} + \varepsilon_{it}$$

$$\text{Model}(2):\ CFO_{it} = \beta_0 + \beta_1 EARNS_{it-1} + \beta_2 \Delta AR_{it-1} + \beta_3 \Delta INV_{it-1} + \beta_4 \Delta AP_{it-1} + \beta_5 DEP_{it-1} + \beta_6 TAXACC_{it-1} + \beta_7 ACCOTH_{it-1} + \varepsilon_{it}$$

Variables	Energy		Materials		Industrials		Consumer Discretionary	
	Model (1)	Model (2)	Model (1)	Model (2)	Model (1)	Model (2)	Model (1)	Model (2)
Intercept	$0.01^{\dagger}$	0.01	0.00	$-0.01^{\dagger}$	0.03^{*}	0.07	$0.05^{\dagger}$	$0.04^{\dagger}$
CASHRD	$0.64^{\dagger}$		$0.57^{\dagger}$		$0.14^{\dagger}$		$0.33^{\dagger}$	
CASHPD	$-0.65^{\dagger}$		$-0.54^{\dagger}$		$-0.11^{\dagger}$		$-0.32^{\dagger}$	
INTPD	0.47		$-0.52^{\dagger}$		$0.35^{\dagger}$		$0.98^{\dagger}$	
TAXPD	$-0.24^{\dagger}$		$-0.60^{\dagger}$		0.76^{**}		-0.03	
CASHOTH	$0.67^{\dagger}$		$0.50^{\dagger}$		-0.23^{*}		$0.57^{\dagger}$	
EARNS		$0.74^{\dagger}$		$0.47^{\dagger}$		$0.56^{\dagger}$		$0.55^{\dagger}$
ΔAR		0.03		$-0.36^{\dagger}$		-0.07		$-0.13^{\dagger}$
ΔINV		-0.35^{**}		-0.00		0.02		$-0.21^{\dagger}$
ΔAP		-0.05		$0.36^{\dagger}$		0.06		0.10^{*}
DEP		$0.66^{\dagger}$		$1.26^{\dagger}$		$1.17^{\dagger}$		$1.14^{\dagger}$
TAXACC		0.07		0.49^{*}		-0.49		-0.21
ACCOTH		$-0.49^{\dagger}$		$-0.46^{\dagger}$		$0.00^{\dagger}$		$-0.10^{\dagger}$
Adjusted R^2	72%	75%	67%	70%	57%	66 %	55%	59%
Vuong's *Z*-statistic	n.a	2.13^{*}	n.a	$3.57^{\dagger}$	n.a	$4.78^{\dagger}$	n.a	2.12^{*}
U-Statistic	$0.32^{\ddagger}$	$0.31^{\ddagger}$	$0.35^{\ddagger}$	$0.31^{\ddagger}$	$0.29^{\ddagger}$	$0.25^{\ddagger}$	$0.32^{\ddagger}$	$28^{\ddagger}$
N	404		1769		689		685	

VARIABLES	Health Care		Information Technology		Consumer Staples	
	Model (1)	Model (2)	Model (1)	Model (2)	Model (1)	Model (2)
Intercept	-0.00	0.00	-0.01^{**}	-0.01^{**}	$0.04^{\dagger}$	-0.01
CASHRD	$0.57^{\dagger}$		0.11^{*}		$0.57^{\dagger}$	
CASHPD	$0.58^{\dagger}$		-0.09^{*}		$-0.55^{\dagger}$	
INTPD	0.11		0.36		$-0.63^{\dagger}$	
TAXPD	0.19^{**}		0.02		$-0.44^{\dagger}$	
CASHOTH	$0.81^{\dagger}$		0.21		0.23	
EARNS		$0.87^{\dagger}$		$0.17^{\dagger}$		$0.61^{\dagger}$
ΔAR		$-0.93^{\dagger}$		-0.13^{*}		$-0.35^{\dagger}$
ΔINV		$0.88^{\dagger}$		-0.16		-0.22^{*}
ΔAP		$0.91^{\dagger}$		0.16		0.31^{*}
DEP		$0.88^{\dagger}$		0.51^{*}		$1.48^{\dagger}$

TAXACC		0.21		0.15†		.0.02
ACCOTH		-0.90†		-0.11*		-0.37†
Adjusted R^2	59%	94%	10%	13%	73%	72 %
Vuong's *Z*-statistic	n.a	7.35†	n.a	4.94†	n.a	1.16
U-Statistic	0.31	0.17†	0.84	0.81	28†	25†
N	291		229		174	

i and *t* denote firm and year respectively. Variables are defined as in Table 2. Vuong's *Z*-statistic relates to Vuong's (1989) likelihood ratio test for model selection. A significant positive *Z*-statistic shows that the first model is rejected in favour of the second model. The *U*-statistic refers to Theil's *U*-statistic. N refers to the total included observations for analysing within-sample and out-of-sample forecasting tests at the industry level after the exclusion of outliers. † Significant at level 0.01. ** Significant at level 0.05. * Significant at level 0.10. ‡ The covariance proportion is higher than the variance and bias proportions.

Individual industry results indicate that although adjusted R^2 measures vary across industries, the value of adjusted R^2 for model (2) is higher than the value of adjusted R^2 for model (1) with a significant Vuong's *Z*-statistics for each industry sector. The exception is the Consumer Staples section, where the adjusted R^2 (72%) for model (2) is lower than the adjusted R^2 (73%) for model (1) and the difference is not statistically significant.

The values of Theil's *U*-statistics and its components across all industry sectors also reconfirm the results of within sample forecasting tests. The results for the industry analysis appear to parallel those based on the total sample; that is, based on models (1) and (2), both the direct and indirect methods of presenting cash flows from operations enhance the forecast of future cash flows. Additionally, the predictability of the indirect method of cash flows presentation is higher than that of the direct method across industries.

6. Additional analysis

In this section, two additional analyses (unreported) are conducted to confirm the robustness of the main results. First, it has been well established in the literature that earnings are significantly associated with future cash flows (e.g. Dechow et al., 1998; Barth et al., 2001). Although not hypothesised, the power of the earnings variable raises the question of whether this particular variable may overshadow the remaining variables in the indirect method of cash flows presentation and the relative predictability of this method. Therefore, in an untabulated test, model (2) is re-examined after excluding earnings for the full sample.

The unreported results verify that the relative predictability of the direct model is almost identical to the relative predictive power of the indirect model without earnings. This conclusion remains unchanged for two-year lag model (2).

Second, Table 3 reports that *CASHRD* is almost perfectly inversely correlated with *CASHPD* (Pearson (*Spearman*) correlation is -0.99 (*-0.94*)). Thus, model (1) may be subject to multicollinearity. To mitigate this potential problem, two methods are applied (see Gujarati, 2003). First, model (1) is examined after combining *CASHRD* and *CASHPD* for the total sample. The regression results change little. Then model (1) is re-analysed after dropping *CASHPD*. However, the prediction ability of model (1) decreases by excluding the variable. Cross-industrial results also yield similar conclusions. It is argued that multicollinearity is not a severe issue if the forecast ability of the model (1) is lower than that of a model with only a subset of the variables (Maddala, 2001, p. 278). Therefore, in this situation, the existence of multicollinearity is accepted.[5]

7. Summary and conclusions

This study investigates whether the direct method of cash flows presentation has superior prediction power to forecast future cash flows compared to the indirect method in the Australian context. The results support the view that while both the direct and indirect methods improve the forecast of future cash flows, the indirect method of cash flows disclosure is more relevant than the direct method in predicting future cash flows. However, when the net income variable is removed from the indirect model – since it appears this is the primary factor in the significance of this model – the direct model's predictability is the same as the indirect model's predictability with net income removed for total sample. Evidence from the industry-level analysis overall reinforces the main results. This finding questions the assertion of the IASB and FASB that the indirect method has a supplementary role in the cash flow statement and thus restricted to the notes of financial statements instead of the cash flow statement. It also contradicts Krishnan and Largay (2000) who conclude that the direct method outperforms the indirect method in predicting future cash flows.

Results from this study provide important information for accounting standard setters in developing standards relating to cash flow

[5] Krishnan and Largay (2000), and Clinch et al. (2002) also indicate similar issue in relation to *CASHRD* and *CASHPD*. They also conclude to continue with their main equation.

statements. A general inference of this study is that both direct and indirect methods are useful in predicting future cash flows. This suggests that accounting standard bodies should consider mandating the report of both the direct and indirect formats of cash flow presentation in cash flow statements. This would allow the users of financial statements to benefit from their preferences, as it provides better comparability across two formats. In closing, this study is subject to the following limitations. First, other alternative forms of prediction models for both direct and indirect methods of cash flows presentation are possible beyond the ones examined in this study. This study may also be influenced by survivorship bias.

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