



Economic Consequences of the Cancellation of Inner Reserves for Hong Kong Banks

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Abstract. Inner reserves, which allow banks to report a higher or lower earnings at managerial discretion, bring into focus the ability of the market to make an informed judgment of banks' performance. This study examines the market response to the disclosure and elimination of inner reserves by Hong Kong banks resulting from a change in the regulatory reporting system. Test results show that despite a significant increase in the variability of bank earnings in the post-compared to the pre-disclosure period, there is no evidence of a significant increase in banks' systematic risk in the post-disclosure period. Earnings-returns association is significantly stronger in the post- than in the pre-disclosure period, indicating an improvement in the value relevance of reported earnings. Disclosure of inner reserve transfer is found to provide incremental information over reported earnings over a short disclosure window. These results suggest that the increased value relevance of earnings outweighs the costs of inner reserve cancellation, thus supporting greater reporting transparency for Hong Kong banks.

Key words: banks, accounting earnings, inner reserve, income smoothing

JEL Classification: M41, G28

1. Introduction

Prior to 1994, banks incorporated in Hong Kong were allowed to maintain inner reserves and make undisclosed transfers to or from them by a special provision in the Hong Kong Companies Ordinances (1990). Inner reserves, also known as hidden or secret reserves, are unreported earnings accomplished by increasing reported liabilities through excessive provision for expenses or decreasing reported assets through underreporting of revenues. Relics from the early days of private banking, inner reserves allow disclosure exemptions to banks. This special privilege has a history in British company law (Schedule 8 of the 1948 Companies Act), based on the argument that banks are subject to wide fluctuations in investment's value and periodic losses on lending which can be disproportionate to single year profits, and the stability of banks is a nationally important asset as their deposits form the essential working capital of the banking system. Reflecting investors' increasing demand for operating transparency of financial institutions, the British Bank Account Regulation (1991) ended this practice. Similar development with regards to inner reserves has evolved in other

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OECD countries as well.¹ The Hong Kong Monetary Authority (HKMA) required banks to disclose their inner reserve transfers in 1994 and inner reserve balances in 1995 annual reports respectively and close the inner reserve account thereafter. This regulatory change corresponded with International Accounting Standard (IAS) No. 30 (reformatted 1994), which calls for greater disclosure by financial institutions.

The elimination of inner reserves is supposed to increase the financial reporting transparency of banks. However, supporters for inner reserves argue that the rescission may lead to a loss of a legitimate tool for management to smooth income by accumulating earnings in good years as buffer for potential poor earnings in bad years, thus resulting in higher bankruptcy risk of banks as perceived by the markets. However, there is little or limited evidence on the economic benefit and cost of inner reserves because of the proprietary nature of the data. The regulatory change of the reporting regime in Hong Kong provides a unique opportunity to study the effects of inner reserve elimination. Specifically, this study examines (1) whether reported earnings of Hong Kong banks are more volatile in the post-disclosure period compared to the pre-disclosure period, (2) whether there is a significant increase in banks' cost of capital as a result of increased variability in reported earnings, (3) whether banks' reported earnings become more value relevant, thus better incorporated in market returns, in the post-disclosure period and (4) whether inner reserve disclosure provides incremental information content over reported earnings over a short disclosure window.

We found that banks' earnings became more volatile subsequent to the cancellation of inner reserves. This evidence is consistent with the suggestion that bank management is likely to use inner reserves to smooth earnings. However, no significant increase in banks' systematic risk resulting from the increases in earnings variability was found in the post-disclosure period. Furthermore, there was a significantly stronger association between banks' earnings and returns in the post- than in the pre-disclosure period, indicating that earnings became less noisy and more value relevant in the post-disclosure period. Results also show that the disclosure of inner reserve transfers had incremental information content over reported earnings by enabling investors to correct their earnings estimation errors. These results suggest that the abolition of inner reserve has improved the reliability of bank financial statements and assisted investors in evaluating banks' economic performance. Taken together, the benefits of increased reporting transparency appear to outweigh the costs of disclosing and eliminating inner reserves for Hong Kong banks. These findings not only contribute to our understanding of the role of inner reserves in the conservative accounting choices of banks, but also have broad policy implications for banking regulators.

The rest of the paper is organized as follows. The next section provides the background. Section three develops testable hypotheses and empirical models. Section four discusses test results. Concluding comments are contained in section five.

2. Bank earnings management and inner reserves

Earnings management is the purposeful intervention in the process of reporting earnings numbers in order to achieve a target level. Earnings management can be achieved by using discretionary accounting procedures that shift costs and/or revenue from one accounting

period to another, or altering the timing of the occurrence of real transactions, e.g., capital expenditures and discretionary spending on advertising or research and development. The general practice of earnings management has been well documented in both accounting and finance studies (e.g., Collins and DeAngelo, 1990; Healy, 1985; Jiambalvo, 1996; Jones, 1991; McNichols and Wilson, 1988; Subramanyam, 1996). Capital adequacy, earnings objective, and tax avoidance have been identified as motivations for bank earnings management, based on their operating characteristics and regulatory environment (Beatty et al., 1993; Collins et al., 1993; Elliott et al., 1991; Griffin and Wallach, 1991; Liu et al., 1997; Moyer, 1990).

Income smoothing involves the manipulation of the time profile of earnings to reduce the fluctuations of publicly reported earnings while not necessarily increasing reported earnings over the long run. It is an important earnings management tool for banks to enhance investors' ability to predict future cash flows by reducing the variations of earnings. Bank management has strong incentives to smooth income because of its responsibility to maintain public confidence in the banking system. Income smoothing could reduce banks' bankruptcy risk as perceived by investors and regulators.² Moreover, the reduced risk may arguably lead to a lower cost of capital, and thus a higher market valuation for banks. Trueman et al. (1988) demonstrate in an agency framework that managers have incentives to present debt holders with low-variance income streams in order to lower the required rate of return by the debt holders and reduce the firm's long-term cost of capital. Income smoothing would also have a beneficial effect on the evaluation of bank management performance. It provides an alternative for low quality management to project an image of high quality management, thus contributing to their "reputation capital" (Best and Zhang, 1993; Billet et al., 1995; Johnson, 1997; Kracaw and Zenner, 1996; Lummer and McConnell, 1989; Slovin et al., 1992).

Studies testing income-smoothing behavior among banks have focused on whether banks use mandatory reserves to smooth reported earnings.³ Since there is a significant latitude in determining the amount of loan-loss provisions, banks could smooth out their income through loan-loss reserves. This line of research, however, reported mixed results about the income-smoothing hypothesis. Greenwalt and Sinkey (1988), Ma (1988) and Bhat (1996) have provided evidence that banks use loan-loss provisions to smooth reported earnings, but Scheiner (1981) and Wetmore and Brick (1994) reached opposite conclusion. These mixed findings may be attributable to the fact that the extent to which bank management can use loan-loss reserves to smooth income is somewhat limited as provisions for the reserves are reported and scrutinized by investors and analysts. For example, Beaver and Engel (1996) found that the market priced the non-discretionary component of loan loss provision more negatively than discretionary component. In order to make income smoothing effective, the managed variables cannot be observable or earnings must be managed in ways such that an analysis of public financial statements is difficult (impossible) to detect. Inner reserves satisfy this criterion and therefore are a more effective mechanism to smooth income than loan-loss provisions. Thus, a bank's published profits, through inner reserve transfers, need not be the same as prepared in accordance with generally accepted accounting principles (thereafter actual profits) and a bank's published assets could also deviate from its actual assets, thus resulting in significant information asymmetry between bank management and investors.

Without a government-guaranteed deposit insurance program as protection against bank runs, Hong Kong banks have had to rely on their own resources to secure a solid financial standing in the markets. Regulators were concerned with the potential loss of public confidence in the banking system if the volatility of bank performance was fully disclosed. In the past, the Hong Kong regulatory authorities believed it to be preferable for banks not to make full disclosure about their business activities and operating results in order to maintain the stability of the banking system. Therefore, under the disclosure regime prior to 1994, banks incorporated in Hong Kong were exempted from the financial reporting requirements applicable to all businesses as set out in the Tenth Schedule of the Companies Ordinance (1990). Instead, banks were allowed to maintain an inner reserve account, make undisclosed transfers to or from it, and disclose less information on the sources of their actual earnings than firms in other industries.⁴ The majority of banks hid an inner reserve account in the balance sheet item "Other Accounts and Provisions."⁵ Inner reserves could be either active (created through operating account) or passive (arising automatically on the balance sheet as current values of assets and liabilities change). Besides smoothing of the published profit figures, inner reserves could also be used to absorb losses, manage asset levels and meet capital adequacy requirements.⁶ Since no breakdown of "Other Accounts and Provisions" was required, it would be difficult for investors to detect the "inner reserve transfers in or out" contained therein from the change in the totals of the account.

Financial coverage has reported Hong Kong banks' use of inner reserves. For example, it was speculated that, when the Hong Kong and Shanghai Banking Corporation (HSBC) bought out the minority shares of its listed US subsidiary, Marine Midland Bank, in 1987, the generated goodwill of HK\$3 billion was not written off through the profit and loss statement, but taken directly to inner reserves (Cottrell, 1988). Another anecdote was that Hong Kong banks only reported, on average, a 15 percent increase in interim profit for the first half of 1989, much below market expectation based on the strong local economy. The lower-than-market-expected profit figure was suspected to increase bank inner reserves against potential political uncertainty in the wake of the June 4 event in China (East Asian Executive Reports, 1989). These conjectures, however, could not be verified owing to the difficulty to uncover the information buried under inner reserves in bank statements.

The lack of reporting transparency also had its cost for Hong Kong banks because the existence of inner reserves potentially garbled reported earnings, and the information asymmetry made it difficult for investors to accurately assess banks' performance and make informed decisions. As a result, there was a trade-off between the need to maintain the stability of the banking system and the requirement for full bank financial reporting. As Hong Kong progressed toward the status of an international financial center and global competition called for greater transparency and accountability by financial institutions, regulators' position on the trade-off shifted accordingly. Their former apprehension that "Hong Kong is too volatile a place to disclose full information" was replaced by the conviction that "the banking system is stronger, it is well capitalized . . . there is a risk that the Hong Kong banking system could suffer a poor image abroad among other regulators, rating agencies and counterparts if it does not disclose more information" (The Banker, 1994). This view is consistent with IAS No. 30 (1994) that banks should disclose "reliable and relevant information which assists users in evaluating the financial position and performance of the bank." Consequently, the

HKMA required banks to disclose their inner reserve transfers and balances in fiscal 1994 and 1995 annual reports respectively (HKMA, 1994). Inner reserves were typically hidden within the liability account: "Other Accounts and Provisions." Once disclosed, the balance of inner reserves was closed and transferred to "General Reserve,"⁷ and the inner reserve account ceased to exist subsequently.

3. Hypotheses and models

Banks are more prone to income smoothing than firms in other industries because of their operating characteristics and regulated environment. The cost of capital, or the required rate of return by investors, is a function of the market's belief in banks' earnings stability, and high earnings variance is perceived to be associated with greater bankruptcy probability and increased cost of bank capital. The fungibility of bank assets (being all substitutable monetary assets) further facilitates bank management's income smoothing behavior. The coexistence of the incentives to smooth income and the availability of inner reserves suggest that Hong Kong banks were likely to use inner reserves for income smoothing before 1994, therefore, earnings variance in the pre-disclosure period would be lower compared to the post period. The practice of income smoothing by means of inner reserves was not directly observable given its secretive nature, but if banks did use inner reserves to smooth reported earnings in the pre-disclosure period, the elimination of inner reserves would significantly reduce their ability to do so in the post period. As a result, the earnings number would be subject to a lesser degree of management and likely to exhibit greater volatility in the post-disclosure period. We test this difference in earnings volatility in the first hypothesis, stated in the alternative form:

H1: Ceteris paribus, the variance of bank earnings is higher in the post-compared to the pre-disclosure period.

The capital asset pricing model defines required rate of return as a function of the systematic risk (beta) of the security. Higher earnings variability in the post-disclosure period could lead to an increase in banks' systematic risk and a correspondingly higher required rate of return (Beaver and Manegold, 1975; Beaver et al., 1979). However, Bitner and Dolan (1996) suggest that the extent to which income smoothing by firms would lower systematic risk depends on whether such behavior goes undetected. They argue that artificial smoothing maneuvers, which will be seen through by the investors, have no effect on market estimation of the firm's systematic beta. In the case of inner reserves, investors are aware that the stability of income stream in the pre-disclosure period is potentially attributable to earnings management through inner reserves, and the abolition of inner reserves would unavoidably lead to greater earnings variability in the post-disclosure period. Therefore, the second hypothesis is:

H2: Ceteris paribus, there is no significant difference in the systematic risk (beta) of banks between the pre and post-disclosure periods.

We next examine the potential benefits of increased financial transparency resulting from the elimination of inner reserves. Since the existence of inner reserves in the pre-disclosure period prohibited investors from knowing the actual earnings of banks, they are likely to attach less importance to published earnings and rely more on other information in assessing banks' performance and value. Subsequent to the regulatory change, banks are no longer able to manage their earnings through inner reserves and have to report earnings prepared on the basis of generally accepted accounting practices. Banks' reported earnings should be less noisy and more accurately reflect their economic performance in the post-disclosure period. Therefore, bank earnings are expected to be more closely correlated with their stock prices in the post-than in the pre-disclosure period. The third hypothesis, stated in the alternative form, is:

H3: Ceteris paribus, earnings-returns association is stronger for banks in the post-compared to the pre-disclosure period.

The final hypothesis relates to the incremental information content of inner reserves over the disclosure window. The HKMA (1994) required banks to disclose the amount of earnings transferred to or from (total balance of) the inner reserve account in their fiscal 1994 (1995) annual reports. When inner reserve transfer is disclosed, investors can detect actual earnings by adjusting reported earnings for inner reserve transfer. If investors consider actual earnings (reported earnings adjusted for inner reserve transfer) more value relevant in predicting future cash flows, we expect a positive association between the magnitude of profit being transferred into the inner reserve account and market return over a short window around the disclosure date. However, if the market views reported earnings as a better signal of future cash flows (e.g., as a proxy for management earnings forecast) than actual earnings, then the disclosure of inner reserve transfer should have no incremental information content.

According to the clean surplus accounting theory, banks' market capitalization not only depends on their accounting earnings, but also on the book value of their common equity (Bernard, 1994; Feltham and Ohlson, 1995). Inner reserves, in addition to being an earnings management tool, can also be used to manage asset level. The existence of inner reserves in "Other Accounts and Provisions" would lead to an over-estimation of liabilities and an under-estimation of the book value of common equity. The reported liabilities and shareholders' equity therefore could be distorted. The disclosure of inner reserve balance would enable investors to uncover the portion of shareholders' equity formerly misrepresented as liabilities. If an estimation of this measurement error provides incremental information to investors, we expect that the market response would be positively associated with the magnitude of the inner reserve balance. In summary, the fourth hypothesis is:

H4: Ceteris paribus, the disclosure of inner reserve transfer (balance) by banks does not provide incremental information content over reported earnings around the disclosure date.

The HKMA required Hong Kong listed banks to disclose their inner reserve transfers and balances over a two-year period (1994–1995). A total of ten Hong Kong banks were listed

on the Hong Kong Stock Exchange during that period. The test data includes the population of all the ten banks for an eight-year period (1990–1997).⁸

We test hypotheses 1 by examining whether there is a significant difference in the variances of published earnings between the pre- and post-disclosure periods by F -tests. The pre-disclosure period covers 1990 to the year before the disclosure of inner reserve transfers and the post-disclosure period extends from the year the inner reserve accounts were cancelled to 1997.⁹ The transition year in which inner reserve transfers were disclosed is excluded from the analysis to provide a more robust test. The results are expected to show that the earnings variance is significantly higher in the post- than the pre-disclosure period.¹⁰

We use the market model to test hypothesis 2 whether greater earnings variability in the post-disclosure period would increase the systematic risk (beta) of banks. We first estimate banks' systematic risk for the two periods separately by regressing their returns on market returns. The single period model is as follows:

$$R_{it} = a + b_i R_{mt} + e_{it} \quad (1)$$

where

R_{it} is the return of bank i on day t ,
 b_i is the systematic risk of bank i ,
 R_{mt} is the market return on day t ,
 e_{it} is a disturbance term.

Then we add a period dummy (assigned a value of 0 for pre-disclosure period and 1 for post-disclosure period) and an interaction term between beta and the period dummy to the model to measure if there is a significant change in the systematic beta of banks between the two periods:

$$R_{it} = a + b_{1i} R_{mt} + b_2 Dummy + b_{3i} R_{mt} * Dummy + e_i, \quad (2)$$

where

b_{1i} is the systematic beta of bank i ,
 $Dummy$ is assigned a value of "0" for the pre-disclosure period and "1" for the post-disclosure period,¹¹
 $R_{mt} * Dummy$ denotes the interaction between the beta of bank i and period dummy,
 R_{it} and R_{mt} are as previously defined.

We expect b_3 to be positive but insignificant.

We use an extended Earnings Response Coefficient (ERC) model to test hypothesis 3 whether earnings are more strongly associated with returns in the post-disclosure period compared to the prior period. Specifically, we examine whether the earnings-returns

relationship is stronger for the post- than the pre-disclosure period by introducing an interaction term of earnings change with period dummy into the model.

$$R_{it} = \alpha + b_1 \Delta EPS_{it} + b_2 Dummy + b_3 \Delta EPS_{it} * Dummy + e_{it} \quad (3)$$

where

R_{it} is the market-adjusted annual return ending 30 days before the annual report date for bank i in year t .

ΔEPS_{it} is earnings per share for bank i in year t minus previous year's earnings per share scaled by the closing price of year $t - 1$.

$Dummy$ is assigned a value of "0" for the pre-disclosure period, and "1" for the post-disclosure period,

$\Delta EPS_{it} * Dummy$ is an interaction term between ΔEPS for bank i in year t and the period dummy.

b_1 is the earnings response coefficient and b_2 controls for the returns variability between the two periods. The coefficient estimate for the interaction term b_3 tests whether reported earnings have greater value relevance in the post-compared to the pre-disclosure period. We expect b_3 to be significantly positive.

We extend the cumulative abnormal return (CAR) model to test hypothesis 4 whether inner reserve disclosure has incremental information content over reported earnings around the disclosure date. First, the market model (Equation 1) is employed to estimate bank-specific parameters in the model over a 120-day period ending 30 days before the disclosure date. Second, we estimate CARs for the disclosure of inner reserve transfer and balance separately for each bank by calculating the cumulative residual returns as the sum of daily residual returns for the window of two days before to two days after the disclosure dates. We then test market reaction to the disclosure of inner reserve transfer and balance as follows:

$$CAR_{i(-2,2)} = a + b_1 \Delta EPS_i + b_2 IRPS_i + e_i \quad (4)$$

where

$CAR_{i(-2,2)}$ is the cumulative abnormal return of bank i from two days before to two days after the filing date of annual report,

ΔEPS_i is earnings per share minus the previous year's earnings per share scaled by the price on day -2 for bank i ;

$IRPS_i$ is per share amount transferred into inner reserve by bank i in the regression application to test the information content of inner reserve transfers and per share amount of inner reserve balance of bank i in the regression application to test the information content of inner reserve balance, both scaled by price on day -2 for bank i .

A significantly positive b_2 would suggest that inner reserve disclosure has incremental information over reported earnings.

4. Test results

Inner reserve data are collected from bank annual reports. Earnings, market and bank returns data are obtained from the PACAP database.¹² A sample bank report format is attached in Figure 1.

The majority of banks reported the amount of their inner reserve transfer in fiscal 1994 and the outstanding balance of their inner reserves in the subsequent year. The descriptive statistics of inner reserve disclosures by all the ten listed Hong Kong banks are presented in Table 1. The first disclosure shows that nine out of the ten banks underreported their earnings by transferring part of earnings into inner reserves with the exception of International Bank of Asia, which made no inner reserve transfer and reported actual earnings. Banks transferred an average of HK\$228 million, or 14.6 percent of their actual earnings, into inner reserves. Hang Seng Bank, the biggest among the listed banks in Hong Kong, made the largest transfer of HK\$1,723 million (60 percent of actual earnings) into its inner reserve account. The second disclosure reveals that banks had an average of HK\$1,037 million of inner reserve balances, accounting for 9.4 percent of their actual common equity. Hang Seng Bank also had the largest inner reserve balance of HK\$7,086 million, representing 23.6 percent of its actual common equity. Hong Kong Chinese Bank had the smallest inner reserve balance (HK\$8.9 million, or 0.7 percent of its actual common equity) probably because of its short operating history. The descriptive statistics suggest that Hong Kong bank management followed a conservative accounting policy to underreport bank earnings and common equity. This accounting prudence may be induced by their desire to build up inner reserves as a safety net against potential earnings volatility. Such behavior is consistent with banks' need to sustain a predictable earnings stream to boost investors' confidence. An inter-bank comparison shows that bigger banks tend to make more use of inner reserves for income smoothing and, in consequence, have accumulated a larger inner reserve balance. This is consistent with findings that, being subject to greater exposure and scrutiny by analysts, large firms are likely to have more conservative reporting policy (e.g., Warfield et al., 1995).

Hypothesis 1 is tested through F -tests of the variance of annual EPS and total earnings of all banks between the pre- and post-disclosure periods and the test results are reported in Table 2. The mean of EPS (1.1456 versus 2.0929) is significantly higher for the post- than the pre-disclosure period at the 0.01 significance level, indicating that banks on average perform better in the post- than pre-disclosure period. A partial explanation for the increase in EPS is the fact that bank management could no longer underreport earnings by making transfers to inner reserve in the post-disclosure period. As expected, the standard deviation of EPS is much higher in the post- than in the pre-disclosure period (1.0567 versus 1.5364). The equality hypothesis for the variances in EPS between the two periods is rejected by the F -test at the 0.02 significance level.¹³ We further examine the variance of total earnings in the two periods. Likewise, results show that the variance of total earnings is significantly higher

Table 1. Disclosure of inner reserve transfer and balance by Hong Kong Banks

Bank	Inner Reserve Transfer				Inner Reserve Balance			
	Disclosure Date	Amount (in HK\$ million)	% of Earnings	Total Asset (HK\$ million)	Disclosure Date	Amount (in HK\$ million)	% of Total Equity	Total Asset (HK\$ million)
Bank of East Asia	1995.1.25	147.5	9.6	79,667	1996.2.8	776.3	7.7	93,046
Dao Heng Bank	1994.10.15	133.5	11.8	67,046	N.A.	N.A.	N.A.	82,213
Hong Seng Bank	1991.3.8	1723.4	60.1	245,970	1992.2.20	7085.7	23.6	259,419
Hong Kong Chinese Bank	1995.4.6	0.1	0.04	17,132	1996.4.26	8.85	0.7	17,926
International Bank of Asia	1995.2.8	0.0	0.0	15,155	1996.2.28	21.6	1.4	17,718
Ka Wah Bank	1995.1.26	13.2	5.0	21,418	1996.1.29	154.0	9.0	25,724
Liu Chong Hing Bank	1995.3.9	18.5	5.0	18,953	1996.3.14	188.5	5.1	21,770
Union Bank of Hong Kong	1995.2.16	43.0	21.1	12,547	1996.3.6	119.2	8.7	14,287
Wing Hang Bank	1995.3.2	119.2	18.9	24,858	1996.3.7	506.37	18.4	29,570
Wing Lung Bank	1995.2.22	90.0	14.7	32,680	1996.2.28	469.6	10.0	39,642
Average		228.8	14.6	53,542		1036.7	9.4	60,131
Standard Deviation		528.2	17.6	71,382		2282.8	7.5	75,261

Panel A: Format of Consolidated Bank Profit and Loss Account

Interest income
Interest expense

Net interest income
Other operating income

Operating expenses
Charge for bad and doubtful debts
Profit from disposal of long-term investments

Operating profit before exceptional items
Exceptional items

Profit for the year before taxation
Taxation
Profit for the year after taxation

Minority interests
Profit attributable to shareholders

Transfer to inner reserve*
Dividends
Profit for the year retained

Panel B: Format of Consolidated Bank Balance Sheet

Assets	Liabilities
Cash and short-term funds	Deposits and balances of banks and financial institutions
Placements with banks and financial institutions	Deposits of customers
Trade bills less provisions	Certificates of deposits
Certificates of deposit	Step-up bonds
Securities held for dealing purposes	Other accounts and provisions**
Advances and other accounts	Proposed final dividend and cash bonus
Investment securities	
Investments in associated companies	Shareholders' Funds
Fixed assets	Share capital
	Reserves***

*The item "Transfer to inner reserves" only appears in fiscal 1994 annual reports.

**"Other accounts and provisions" includes inner reserves prior to its elimination in 1995.

***The full amount of inner reserve balance, once disclosed, was reallocated to "Reserves" in 1995.

Figure 1.

in the post- than pre-disclosure period at the 0.000 level.¹⁴ These findings are consistent with the expectation that bank management was likely engaged in income smoothing through inner reserves, thus accounting for a more stable earnings movement in the pre-disclosure period, and earnings would exhibit a significantly higher variability in the post-disclosure period as a result of the abolition of inner reserve. Thus, the results support hypothesis 1.

Table 2. Variability comparison

Variable	Period	N	Mean	Std. Dev.	Std. Err.	Variances	t-statistic	p-value
EPS	1	21	1.1456	1.0567	0.2306	Unequal	-2.682	0.010
	2	33	2.0929	1.5364	0.2675			
						Equal	-2.474	0.017
<i>For H0: Variances are equal,^a</i>			$F' = 6.103$	$\text{Prob} > F' = 0.017^{**}$				
EARN	1	21	362	488	107	Unequal	-3.340	0.002
	2	33	2,010	2771	483			
						Equal	-2.693	0.010
<i>For H0: Variances are equal,^a</i>			$F' = 18.136$	$\text{Prob} > F' = 0.000^{***}$				

EPS: Annual earnings per share in Hong Kong dollar.

EARN: Total annual earnings in Hong Kong dollar (million).

Period 1: Pre-disclosure period, defined as from 1990 to the year before the disclosure of inner reserve transfer.

Period 2: Post-disclosure period, defined as from the year inner reserve accounts are cancelled to 1997.

^aLevene's test for equality of variances.

**Significant at the 0.05 level.

***Significant at the 0.01 level.

The test results of hypothesis 2 are reported in Table 3. The coefficient estimate for beta is 0.8535 and the adjusted R^2 of the model is 0.325 for the pre-disclosure period. The coefficient estimate for beta is 0.9814 and the adjusted R^2 of the model is 0.381 for the post-disclosure period. The beta coefficients for both periods are significant at the 0.000 level. We next estimate the combined model (Equation 2) to test the statistical significance of the difference in beta between the two periods. The combined model shows a beta coefficient estimate of 0.9927 (also significant at the 0.01 level) and an adjusted R^2 of 0.331. The coefficient estimate (b_3) for the interaction term, $R_{mt} * Dummy$, is positive, suggesting that the systematic risk (beta) of banks is higher in the post-disclosure period ($0.9927 + 0.0487 = 1.0414$) as compared to the pre-disclosure period (0.9927). However, it is not statistically significant at the conventional level. Therefore, the results indicate no evidence of a significant increase in the systematic risk for banks as a result of increased earnings volatility in the post-disclosure period.

It is further noticed that the coefficient estimate for the period dummy (b_2) is significantly negative (at the 0.05 level), indicating a lower idiosyncratic risk for the post-disclosure period when financial reporting is more transparent and value-relevant. This finding is consistent with the belief that increased transparency in financial reporting leads to a lower search cost, thus contributing to a lower cost of capital. The absence of a significant increase in beta plus the evidence of a significantly lower idiosyncratic risk in the post-disclosure period indicate no evidence of higher costs of capital for banks resulting from the abolition of inner reserves. Therefore, hypothesis 2 cannot be rejected.

Equation (3) is applied to test hypothesis 3 whether banks' earnings-returns relationship has improved subsequent to the closure of the inner reserve account, and the results are reported in Table 4. The earnings response coefficient (b_1) for the pre-disclosure period is negative (-0.4038) at the 0.01 significance level. The significant negativity is contrary to the expectation of a positive association between earnings change and stock return as

Table 3. Beta and return

Dependent Variable: Rate of return							
Period	<i>N</i>	Adj. <i>R</i> ²	Variable	Estimate	Std. Err.	<i>t</i> -statistic	<i>p</i> -value
1	6629	0.325	Intercept	0.0002	0.0002	1.105	0.270
			Beta	0.8535	0.0160	53.274	0.000***
2	4519	0.381	Intercept	0.0001	0.0002	0.355	0.722
			Beta	0.9814	0.0203	48.316	0.000***
Combined	11148	0.331	Intercept	0.0003	0.0002	1.365	0.172
			Beta	0.9927	0.0172	57.743	0.000***
			Dummy	−0.0006	0.0003	−2.034	0.046**
			Beta*Dummy	0.0487	0.0330	1.474	0.141

Period 1: Pre-disclosure period, defined as from January 1, 1990 to 30 days prior to the disclosure of inner reserve transfers.

Period 2: Post-disclosure period, defined as from 30 days after the disclosure of inner reserve balances to December 31, 1997.

Combined: Combined period of period 1 and period 2.

Dummy: Period dummy equals “0” for period 1, and “1” for period 2.

Beta*Dummy: Interaction term between *Beta* and *Dummy*.

**Significant at the 0.05 level.

***Significant at the 0.01 level.

documented in prior studies. The lack of a positive association suggests that the markets do not react to earnings, which were subjected to inner reserve transfers, in the expected direction in the pre-disclosure period. The slope dummy ($\Delta EPS' * Dummy$) has a positive coefficient estimate (b_3) of 0.513 at the 0.01 significance level, indicating a strong positive correlation ($0.513 - 0.4038 = 0.1092$) between earnings and returns after banks have stopped managing earnings through inner reserves.¹⁵ The test results indicate that reported earnings become more useful in predicting stock returns in the post-disclosure period. The elimination of inner reserves, by restricting management latitude for accounting discretion, improves the earnings-returns relationship. These results support hypothesis 3 and provide empirical evidence on the benefit of increased financial reporting transparency for banks.

We now turn to the analysis of the information content of inner reserve disclosure. We applied equation (4) to test the information content of the disclosures of inner reserve transfers and balances separately. Table 5 reports the association between the 5-day cumulative abnormal returns and the amount of earnings transferred into inner reserves.¹⁶ The descriptive statistics discussed earlier reveal that banks under-reported earnings by transferring part of earnings into inner reserves. The disclosure of transfer-in amounts enabled investors and analysts to apprehend the actual earnings of banks. The coefficient estimate for IRPS (per share amount of transfer from earnings to the inner reserve account) is positive (0.7771) and significant at the 0.01 level, indicating that banks with a larger inner reserve transfer-in (greater amount of underreported earnings) are associated with a larger positive abnormal return. The results thus support that the magnitude of earnings transferred into inner reserve has incremental information content over reported earnings, and the markets give a greater weight to actual, rather than managed, earnings.

Table 4. Earnings-return relationship

Dependent Variable: Market adjusted annual returns over the fiscal year $N = 53$ $F\text{-value} = 3.575$ $\text{Prob} > F = 0.014$ $\text{Adj. } R^2 = 0.198$				
Variable	Estimate	Std. Error	t -statistic	p -value
Intercept	0.1724	0.0786	2.194	0.034**
EPS	-0.4038	0.1272	-3.174	0.003***
Dummy	-0.1622	0.0951	-1.706	0.096*
EPS*Dummy	0.5130	0.1752	2.928	0.006***

EPS: Earnings per share for bank i in fiscal year t minus previous year's earnings per share scaled by closing price of year $t - 1$.

Dummy: Period dummy equal '0' for fiscal years from 1990 to the year prior to the inner reserve disclosure, and '1' for fiscal years after inner reserve disclosure until 1997.

EPS*Dummy: Interaction term between EPS and Dummy.

*Significant at the 0.1 level.

**Significant at the 0.05 level.

***Significant at the 0.01 level.

Table 5. Information content of the inner reserve transfer

Dependent Variable: Cumulative abnormal return (-2, +2) $N = 10$ $F\text{-value} = 4.37$ $p\text{-value} = 0.010$ $\text{Adj. } R^2 = 0.210$				
Variable	Parameter	Std. Dev.	t -statistic	p -value
Intercept	-0.2304	0.1209	-1.906	0.065*
EPS	0.5429	0.1947	2.788	0.009***
IRPS	0.7771	0.2703	2.875	0.007***

EPS: Current year's earnings per share minus previous year's earnings per share scaled by price on day-2.

IRPS: Per share amount transferred into inner reserve for 1994, scaled by price on day-2.

*Significant at the 0.1 level.

**Significant at the 0.05 level.

***Significant at the 0.01 level.

The disclosure of inner reserve balances in the following year, however, does not elicit similar response from the markets. The test results of the application of equation (4) for the inner reserve balance disclosure (not reported here) are not significant at the conventional level, although the sign of the coefficient estimate for inner reserve balance is positive. One possible explanation for the lack of incremental information content in inner reserve balance disclosure is that the markets might have inferred the amount of inner reserve balance based on the previous year's inner reserve transfer disclosure, thus preempting any potential "surprise" effect of inner reserve balance disclosure. An alternative explanation is that banks' earnings have a greater weight on bank returns than common equity because bank equity is a relatively small percentage of total assets.¹⁷ However, our research design did not allow us to distinguish between the two alternative explanations. Overall, our results reject hypothesis 4 for the disclosure of inner reserve transfer, but not for the disclosure of inner reserve balance.

5. Conclusion

Bank management is motivated to maintain a stable earnings stream in order to reduce potential bankruptcy risks and enhance the stability of banking system. A sustainable earnings stream may reduce the systematic risk as perceived by investors and regulators, and presumably lower the cost of capital. Inner reserves is an effective income smoothing tool because it is difficult, if not impossible, for investors to detect the extent of their usage. Hong Kong banks were allowed to keep an inner reserve account prior to 1994, enabling banks to underreport their earnings in good years by transferring part of profits into inner reserves so that a transfer-out could be made to boost earnings in years of poor performance. In a step toward greater financial transparency, Hong Kong Monetary Authority (HKMA) decided to rescind this practice by requiring Hong Kong banks to disclose and eliminate their inner reserves over 1994–1995.

We find a significant increase in the variability of bank earnings in the post-compared to the pre-disclosure period. However, there is no evidence that increased earnings variance has led to a significant increase in banks' systematic risk. Furthermore, the earnings-returns relationship has significantly improved in the post-disclosure period, suggesting a positive effect of the abolition of inner reserves on the value relevance of banks' reported earnings. The evidence alleviates the fear that the cancellation of inner reserves would increase banks' cost of capital, and suggests that the benefits of increased transparency, on balance, outweigh the costs of inner reserve elimination. Recently, there is an increasing concern with financial transparency in Asia, the lack of which has been blamed for the "Asian financial crisis" starting in 1997 and continuous vulnerability of some Asian markets (Wolfensohn, 1999). Improved financial transparency is suggested as a solution to solve this problem. Evidence on the benefit of the elimination of inner reserves supports the orientation of HKMA toward greater reporting transparency for Hong Kong banks.

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Notes

1. Germany still allowed banks to maintain inner reserves by 1994. However, Deutsche Bank, one of the three German national banks, voluntarily adopted IAS No. 30 and abandoned inner or hidden reserves in 1995 (Accountancy, 1996).
2. For example, the US regulatory agencies use a CAMEL (Capital adequacy, Asset quality, Management, Earnings stability, and Liquidity) scheme to evaluate the financial well-being of banks.
3. Banks in the US also use gains and losses on securities transactions for earnings management. In order to call investors' attention to this possibility, the Securities and Exchange Commission requires banks to report

two earnings numbers in their income statement: income before securities transactions and net income (after securities transactions). However, there is no such requirement in Hong Kong.

4. Hong Kong banks need only to provide limited balance sheet information and did not have to provide a breakdown of income, operating expenses, and the charge for bad and doubtful receivables in their profit and loss statements.
5. The account includes provisions for expenditures, such as taxations and retirement benefits. Loan loss provisions are included in the account "trade bills less provisions" on the balance sheet.
6. When Hong Kong and Shanghai Banking Corporation (HSBC) merged with Britain's Midland Bank in 1992, it revealed its inner reserve totaling HK\$25.3 billion, comprising HK\$16.6 billion in cash, HK\$6.7 billion in unrealized investment gains, and HK\$2 billion in revalued property (Taylor, 1992). This example illustrates the potential asset composition of inner reserve.
7. "General reserve" is an item under "reserves" (see Figure 1). Other items under "reserves" include share premium, capital redemption reserves, and revaluation reserves of properties. Banks are required to show the breakdown of "reserves" in the footnotes of financial statement.
8. The Hong Kong and Shanghai Banking Corporation (HSBC), dually listed in Hong Kong and London, is not included in the sample for two reasons. First, it moved its headquarters from Hong Kong to London on January 1, 1993 and officially ceased to be an incorporated authorized institution in Hong Kong. Second, as a multinational bank, it is significantly different from local Hong Kong banks in operations profile and reporting requirement.
9. All sample banks disclose inner reserve transfers (balances) in their 1994 (1995) annual reports except for Hang Seng Bank. As a subsidiary of London-listed HSBC, Hang Seng Bank had to disclose inner reserve information in 1991 and 1992 to meet the requirement of the British Bank Account Regulation (1991).
10. Not all banks were listed prior to 1990 (Hong Kong Chinese Bank was listed in 1992 and Dao Heng Bank, International Bank of Asia, Liu Chong Hing Bank, and Wing Hing Bank were listed in 1993). As a result, there are 21 (33) earnings observations in the pre- (post) disclosure period in the test of hypothesis one.
11. The pre-disclosure period is from January 1, 1990 to 30 days prior to the disclosure of inner reserve transfers, and the post-disclosure period is from 30 days after the disclosure of inner reserve balances to December 31, 1997.
12. PACAP database is developed by University of Rhode Island.
13. The computer procedure tests the equality hypothesis for both the mean and standard deviation. All the statistics are reported in Table 2, but only the F -statistic for variance equality is discussed in the paper.
14. We also use similar method to test if there is a significant difference in market-adjusted daily returns for banks between the two periods. The results, which are not reported here, show that the variance of market-adjusted daily returns is significantly higher (p -value = 0.000) in the post- than pre-disclosure period while the mean market-adjusted returns are not significantly different between the two periods. These results provide supplemental information to the test of hypothesis 2.
15. To check whether the observed results are affected by outliers, we perform a sensitivity test by excluding Hang Seng Bank from the sample. The results reported in Tables 2 to 4 are robust to this sensitivity test.
16. We have also varied the length of the window from 1 to 7 days. The test results, not reported here, are qualitatively the same.
17. According to the Basle agreement, the required critical capital ratio for banks is eight percent.

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