Impact of Deposit Rate Deregulation in Hong Kong on the Market Value of Commercial Banks

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Abstract

This paper examines the impact of deposit rate deregulation on the market value of banks in Hong Kong. We do not find that the release of the Consumer Council's Report "Are Hong Kong Depositors Fairly Treated?" in 1994 was associated with any significant stock market reaction, contrary to the hypothesis that banks had been extracting excess profits from depositors under the Interest Rate Rules ("IRR"). Even when the government decided to start deregulating time deposit interest rates, the stock market was indifferent to the announcement, further suggesting the lack of subsidy was incidental to the IRRs.

The recent announcement of complete deregulation of the IRRs, however, was found to be associated with a significant positive stock market response. The findings suggest that IRRs deregulation would benefit, rather than hurt, bank earnings. Furthermore, large banks and banks with high growth rates, high net interest margins, and high liability costs are found to benefit more from deregulation.

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1. Introduction

Regulation of interest rates paid to bank depositors is often motivated by public policy concern in promoting banking stability by constraining competition in the deposit market. If banks are allowed to compete freely for deposits, it is often argued that banks bidding up their cost of funds may have stronger incentives to take risk. However, government intervention in the deposit market will lead to distortions, including pricing inefficiencies and the misallocation of funds in the capital market. Thus, the deregulation of interest rates has important implications for both investors and policy makers. This paper investigates one aspect of the issue, specifically the impact of deposit rates deregulation on bank shareholders' wealth.

Since 1964, interest rates on bank deposits in Hong Kong have been regulated by a set of interest rate rules (IRRs) issued by the Hong Kong Association of Banks (HKAB) under the Hong Kong Association of Banks Ordinance. The IRRs originally applied to interest rates paid by licensed banks to customers on Hong Kong dollar (HK$) deposits of less than $500,000 and with a maturity of less than 15 months.[1] Under the IRRs, no interest shall be paid on current accounts. Interest rates on other accounts covered by the IRRs are determined from time to time by the HKAB Committee after consultation with the Hong Kong Monetary Authority (HKMA) under delegated authority from the Financial Secretary of Hong Kong. The IRRs were in full operation until 1994, when the rules were first relaxed by removing the interest rate cap on certain types of time deposits. After the sovereignty of Hong Kong was returned to China in 1997, and the recovery of the local economy from the Asian financial crisis, the HKMA announced in May 2000 steps to abolish the IRRs entirely.

When deposit rates are set by a formal cartel rather than by market forces, it may confer monopoly rents upon banking institutions. This argument generally proceeds as follows. Some suppliers of capital restrict their choice of investment medium for at least a portion of their wealth to bank deposits, for a number of reasons including risk aversion, convenience, and lack of sufficient resources to meet minimum initial investment requirements elsewhere. Constraining deposit rates to a level below which banks would be willing to pay in an otherwise free market subsidizes banks at the expense of depositors. Moreover, by limiting the value of other services that banks can offer, the cartel assures that the subsidy arising from restricting price competition is not fully dissipated via non-price competition. Under this argument, a relaxation of the IRRs reduces the subsidy to the bank, and by implication the value of the bank.[2] This is referred to as the Subsidy Reduction Hypothesis.

A second hypothesis is that whatever subsidies banks might receive from restricting price competition are fully dissipated through non-price competition, such as operating longer hours or building a larger branch network. Under this view, depositors essentially receive the equivalent of the full-market interest rate. This hypothesis, referred to as the Irrelevance Hypothesis, predicts that the deregulation of interest rates will have no impact on the value of banks.

1 Specifically, rates are set under the IRRs in respect of the following accounts: (a) current account (same as demand deposit); (b) savings account; (c) 24-hour call deposit; (d) 7-day call deposit; and (e) time deposit up to 15 months in maturity.

2 The existence of monopoly rents that arise from restricting competition among banks does not by itself ensure that these rents augment the value of the institution. The rents may be captured by managers of banks in the form of supracompetitive salaries and other perquisites. It is assumed that the market for managers in Hong Kong is sufficiently competitive that at least some of the rents accrue to the owners of the banks.

A third hypothesis regarding the impact of regulatory changes on the value of banks is a variant of the Producer Protection Hypothesis originally posited by Stigler (1971) and Jordan (1972). In his "capture" theory of regulation, Stigler proposes that although regulators are originally established by the government to regulate the regulatees, the regulators can be subsequently "captured" by the regulatees due to the alignment of self-interests between the regulators and the regulatees. For example, both the regulators and the regulatees may have the same incentive to maximize the size of the regulated industry. Hence, according to this theory, regulation is demanded and acquired by the regulated, and that regulations are designed and administrated primarily for the benefits of the regulatees.[3] In the case of IRRs deregulation, the relaxation of interest rate ceiling on deposits may prevent disintermediation from banks that would otherwise occur. Furthermore, to the extent that certain substitutes for regulated deposits, such as swap deposits, may be more costly to produce than regulated deposits, removing the interest rate ceilings may help banks to save operating costs.[4] Finally, if close substitutes for regulated deposits are not readily available, competing through non-price channels for deposits may be less efficient and more costly than unfettered competition. Under the Producer Protection Hypothesis, relaxing the IRRs would not harm banks' earnings but permit them to compete more effectively with unregulated financial instruments and to operate more efficiently. This hypothesis predicts that the relaxation of the IRRs will add value to banks.

To discriminate among these competing hypotheses, this paper investigates the impact of IRRs deregulation on the market value of bank equities. Using the event study methodology, the common stock performance of banks around the announcement of the IRRs changes is examined. The major finding is that listed banks did not seem to experience significant abnormal change in market value at the announcement of the partial IRRs deregulation in 1994. However, in May 2000, when the complete deregulation of the IRRs was announced, listed banks were found to have significantly positive abnormal change in market value, which is consistent with the Producer Protection Hypothesis. Furthermore, cross sectional analysis suggests that banks that are in the best position to benefit from the IRRs deregulation enjoy higher abnormal returns around the deregulation announcement.

The rest of the paper is organized as follows. Section 2 describes the chronological development of the IRRs deregulation in Hong Kong. The methodology and data are discussed in Section 3. Results of the event study are presented in Section 4, and the cross-sectional analysis is presented in Section 5. Section 6 concludes this paper.

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3 We distinguish between the effects of the original imposition of government regulation and the subsequent administration of the regulations. Imposing regulations on a previously unregulated firm may reduce firm value, but it does not necessarily follow that all subsequent regulatory actions will be value-reducing. Peltzman (1976) argues that the regulators' constituency cannot in general be limited to one economic interest. Hence, it is important to emphasize that the issue addressed in this paper is whether the regulated industry on balance benefits from regulatory changes in deposit rate ceilings.

4 Foreign currency swap deposits are deposits involving customers buying foreign currencies in the spot market and placing them as deposits with banks, while at the same time entering into a contract to sell such foreign currencies (principal plus interest) forward in line with the maturity of such deposits. Foreign currency deposits are not subject to the IRRs.

2. IRRs Deregulation

Appendix 1 provides the important event dates about the deregulation of deposit interest rate ceilings in Hong Kong. The deregulation process includes a sequence of events spanning a six-year period. Stage one of the deregulation occurred when Hong Kong was still a British colony. The second stage took place after the sovereignty of Hong Kong was returned to China.

2.1. The first stage of deregulation

In February 1994, the Consumer Council in Hong Kong released a Report ("the Report") entitled "An Evaluation of the Banking Policies and Practices in Hong Kong." The Report was based on a consultancy study commissioned by the Council to evaluate the impact of banking policies and practices on the consumer. The Report concluded that licensed banks in Hong Kong, by operating as a cartel, had been extracting excess profits from depositors through setting artificially low deposit interest rates under the IRRs. The Report estimated the rent earned by Hong Kong banks due to the IRRs to be in the order of one per cent of Hong Kong's GDP annually.[5] The Consumer Council thus recommended a gradual phasing out of the IRRs commencing in 1995.

As expected, the HKAB disagreed with the Consumer Council's recommendation to phase out the IRRs and denied the Report's assertion of a monopolistic deposit market in Hong Kong. After studying the Consumer Council's Report and conducting its own research, the HKMA, the de facto central bank and the sole banking regulator in Hong Kong, issued an official response to the IRRs Report on July 4, 1994. The HKMA found no conclusive evidence that the banks were reaping excessive profits from the IRRs. Furthermore, while the IRRs created the potential for monopolistic profits, the HKMA was not convinced by the Report's estimates of the size of the rents. In particular, the HKMA pointed out that the potential for excess profits would have been eroded by the development of substitutes for IRR-regulated deposits, such as the development of swap deposits. The use of non-price competition and the lack of significant disintermediation were also cited as counter arguments to the existence of monopoly profit in the banking industry.

While not accepting all the arguments put forth by the Report, the HKMA, having regard to the free market philosophy, was of the view that liberalization of the way in which retail interest rates were set in Hong Kong should be encouraged. The HKMA proposed to partially remove the interest rate cap on time deposits in 1995. This reflected the fact that HK$ time deposits subject to the IRRs were only about four per cent of total HK$ deposits at that time, and such deposits also faced competition from swap deposits. Regarding demand deposits and savings deposits, which were much more significant in size, the HKMA's position was that deregulation would be considered only when the impact of the time deposit deregulation had been fully assessed.

5 Please also see Chan and Khoo (1998) for the academic version of the paper.

In July 1994, the Hong Kong government adopted the HKMA's study in response to the Consumer Council's report on the IRRs, setting the stage for deregulating time deposits with maturity of more than 24 hours. In the first phase of deregulation, the interest rate cap on time deposits with maturity of more than one month was lifted. The second phase deregulated time deposits with maturity of more than seven days; and the final phase deregulated time deposits with maturity of more than 24 hours. The government also explicitly stated that the HKMA was not considering the deregulation of other deposits at that time.

After implementing the first two phases of time deposit deregulation in March 1995, the HKMA announced the decision to postpone the third phase of deregulation of time deposits fixed for more than 24 hours, due to potential instability in the banking sector. In September 1995, the government announced the decision to remove the interest rate cap on time deposits fixed for seven days. The government also decided that there should be no further deregulation of time deposits with maturity less than seven days, and that the current program of deregulation should come to an end, in order to strike a balance between preserving banking stability and introducing more competition.

2.2. The second stage of deregulation

In March 1998, after China regained Hong Kong's sovereignty, the HKMA appointed two consulting firms to carry out a study on the future development of the banking sector in Hong Kong. Six months later, the consultancy study, entitled "Hong Kong Banking into the New Millennium," was released to the public. The study made a number of important policy recommendations, including the phased deregulation of the remaining interest rate rules. However, it should be noted that the recommendations were those of the consultants and the HKMA had not taken any views on the recommendations.

In July 1999, after a three-month public consultation period, the HKMA issued a policy response to the recommendations of the consultancy study. One of the initiatives was to adopt a two-phased approach to deregulate the remaining interest rate rules, provided that the economic and financial conditions would be favourable for deregulation after extensive monitoring of the economy. While this announcement conveyed to the public the intention of the government to deregulate the remaining interest rate rules, there was a fair amount of uncertainty regarding the future condition of the economy when Hong Kong was recovering from the Asian financial crisis.

In May 2000, the HKMA announced the deregulation of the remaining time deposits with maturity less than 7 days. It also announced that, subject to stable economic conditions, the interest rate caps on demand and savings deposits will be removed in July 2001. Successful implementation of these two phases of interest rate deregulation would completely abolish the 36-year old IRRs.

As of 1999, total HK$ demand and savings deposits account for 32% of total HK$ deposits held by licensed banks. Back in 1994, when time deposits were deregulated, HK$ time deposits subject to the IRR constituted only four per cent of HK$ deposits. Thus, compared to the deregulation of time deposits, the deregulation of demand and savings deposit rates represents a more significant economic event.

3. Methodology

Following the standard event study approach, residual returns for each of the sample banks for an 11-day window centered on the date of the announcement are calculated. Daily expected bank stock returns are estimated using the standard market model (see Fama (1985)):

(1) $$R_{jt} = \alpha_j + \beta_j R_{mt} + \varepsilon_{jt},$$

where R_{jt} is firm j's stock return at day t, R_{mt} is the stock market return at day t, α_j and β_j are a firm specific intercept and the covariance with the market, respectively. The error term, ε_{jt}, is assumed to have zero mean, be independent of R_{mt}, and be uncorrelated across firms. Rearranging the terms in (1), the estimated residual return for any bank stocks predicted from the model is equal to

(2) $$\hat{\varepsilon}_{jt} = R_{jt} - \hat{\alpha}_j - \hat{\beta}_j R_{mt}.$$

The residuals from (2) are used to test the competing hypotheses relating to IRRs deregulation. The OLS estimates, $\hat{\alpha}_j$ and $\hat{\beta}_j$, are estimated using daily stock returns from days –100 to –25 relative to the announcement date.[6]

Since the announcement occurs on the same calendar date for all firms, and all firms are in the same industry, the assumption that the residual returns are cross-sectionally independent may not hold. Following Jaffe (1974) and O'Hara and Shaw (1990), a test statistic based on a standard deviation estimated for the portfolio of sample banks from residual returns in the estimation period is used.[7] This test statistic, widely used in calendar time event studies in finance, is equal to

(3) $$\bar{\varepsilon}_t / \hat{S}(\bar{\varepsilon}_t),$$

where

(4) $$\bar{\varepsilon}_t = \frac{1}{N} \sum_{i=1}^{N} \varepsilon_{it},$$

(5) $$\hat{S}(\bar{\varepsilon}_t) = \sqrt{\sum_{t=-100}^{-25} \frac{(\bar{\varepsilon}_t - \bar{\omega})^2}{75}},$$

(6) $$\bar{\omega} = \frac{1}{76} \sum_{t=-100}^{-25} \bar{\varepsilon}_t,$$

and N equals the number of banks.

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6 While the results presented here are based on the event window for days -5 to +5 relative to the event date, a wider event window for days -24 to +5 is investigated to allow the possibility of news leakage.

7 Please also see Brown and Warner (1985) for further discussion on event-date clustering.

Daily stock returns for all 13 listed banks (12 in February 1994) in Hong Kong are obtained from Bloomberg to estimate (1). While there were a total of 156 licensed banks in Hong Kong at the end of 1999, the 13 listed banks accounted for 48 percent of all deposits held by licensed banks. To the extent that many smaller institutions are not listed on the stock exchange, small banks are under-represented in the sample. The results therefore may not be applicable to small banks. The daily returns of the Hang Seng Stock Index are used to proxy for the market return.

The above method is applied to three event dates that are of critical importance to the IRR deregulation process: (i) the public release of the Consumer Council's Report entitled "An Evaluation of the Banking Policies and Practices in Hong Kong" on February 28, 1994 that led to the debate of the IRRs deregulation, (ii) the announcement by the government on July 26, 1994 to start the deregulation process by lifting the interest rate ceiling on certain types of time deposits, and (iii) the announcement on May 30, 2000 by the HKMA to deregulate the remaining time deposits, as well as the more significant demand deposits and savings deposits. We searched the South China Morning Post, the leading English newspaper in Hong Kong, for contaminating events around the three announcement dates that also may have affected bank stock returns. For the first event date of February 28, 1994, both the Hong Kong and Shanghai Banking Corporation and the Hang Seng Bank announced earnings on the same date. However, conducting the analysis with and without those two banks provided qualitatively similar results. For the other two event dates, no significant contaminating events are found.

4. Event Study Results

4.1. The release of the Consumer Council's Report

Table 1 provides mean residual returns for an eleven-day window centered on February 28, 1994 for the 12 listed banks in the sample. On average, while the residual returns from day –5 to day 0 are close to zero, the residual returns tend to be negative from day +1 to day +5. Nevertheless, none of the mean residual returns are statistically significant. The biggest mean residual return, -1.42% (p-value of 17%) occurs one day after the Consumer Council released the Report to the public. Given the lack of statistical significance of the mean residual returns, the findings suggest that, despite the publicity created by the release of the Report, the market response to this event was basically neutral. The results indicate that the market perceived no wealth implications from the release of the Report. Thus, either the IRRs were not perceived to have led to any wealth transfer between depositors and bank shareholders, or investors did not expect the Report would lead to any future changes in the IRRs.

4.2. The adoption of partial deregulation of the IRRs[8]

Table 2 presents the results for the event window centered on July 26, 1994, when the Hong Kong government announced the deregulation of the interest rate ceiling on certain types of time deposits. The mean residual returns for the 12 listed banks around the deregulation announcement are mixed. The mean residual return of –1.2%, significant at the 10% level, is registered in day –4, followed by a –1% mean residual return (not significant) at day –2. However, mean residual return at day +1 is 1.14% (p-value of 11.6%). Overall, in terms of statistical significance, the market again seems to be indifferent to the policy change of partially deregulating time deposit interest rates, which is consistent with the Irrelevance Hypothesis. The findings suggest that any excess profits due to the interest rate cap on time deposits had been competed away, either through non-price competition or by developing unregulated deposit product substitutes such as swap accounts.

4.3. The complete deregulation of the IRRs

In Table 3, the event window is centered on May 30, 2000, when the HKMA announced the resumption of IRRs deregulation by removing the interest rate cap, first on the remaining regulated time deposits and then the demand and savings deposits, bringing the IRRs deregulation to a close.[9] As of 1999, total HK$ demand and savings deposits accounted for 32% of total HK$ deposits held by licensed banks. Thus, compared to the deregulation of time deposits, the deregulation of demand and savings deposits represents a more significant economic event. Table 4 shows that the mean residual returns at day +3 and day +5 are 3.36% and 3.33%, respectively. In addition to being statistically significant at the 5% level, the mean residual returns are also economically significant. Assuming no news leakage prior to the official press release, the six days cumulative residual return from day 0 to day +5 averaged 6.58%. The results show that the market reacted quite positively to the latest deregulation announcement, indicating that bank shareholders would benefit from the removal of interest rate regulation. The findings do not support the Subsidy Reduction Hypothesis that licensed banks in Hong Kong have been extracting excess profits from depositors through setting artificially low deposit interest rates under the IRRs. Rather, they are consistent with the Producer Protection Hypothesis, suggesting that bank earnings, on average, can be improved by removing the interest rate ceilings. It appears that under the IRRs, banks have been competing for deposits through non-price channels and developing unregulated deposit substitutes, incurring higher operating costs than in an otherwise free deposit market.

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8 We also conducted the analysis for the event dates of July 4, 1994, August 26, 1994, March 14, 1995, and September 26, 1995 for the four events related to the first stage of the IRRs deregulation (see Appendix 1). No significant residual returns for those four event dates were found.

9 Residual returns around the event window of December 18, 1998, when the banking sector consultancy study was released, and the event window of July 14, 1999, when the HKMA issued a policy response to the consultancy study, are insignificant and are not reported. This may be due to the fact that both events are not exclusively related to the IRRs deregulation. Nevertheless, these two events would bias against finding any significant residual returns around the official announcement in May 2000.

5. Cross Section Analysis

Results in Table 3 show that listed banks on average would benefit from the IRRs deregulation. One question raised by these results is which particular banks would benefit the most from this policy change? To shed light on this question, the day 0 to day +5 cumulative residual returns of the 13 listed banks are regressed against certain bank characteristics, including the following:

Deposit-to-Asset Ratio = Total Deposits / Total Assets;

Net Interest Margin = Net Interest Income / Total Interest Earning Assets;

Interest Cost = Total Interest Expenses / Total Liabilities;

Deposit Growth = past five-year compound average deposit growth rate;

Loan Growth = past five-year compound average loan growth rate;

Size = Log of total assets.

All variables are as of year-end 1999.

From the earlier discussion of the profit effects, the IRRs make it more costly for banks to attract deposits. The Deposit-to-Asset Ratio tests whether banks that have more deposits have to incur additional operating costs to attract deposits, thus benefiting more from the deregulation. The Net Interest Margin tests whether the IRRs deregulation will add more value to banks with high interest margin, because these banks are in a better position to use price competition to attract deposits. Interest Cost measures the bank's average liability cost. To the extent that the IRRs inhibit banks' ability to gather deposits and they therefore have to borrow from more costly sources, the Interest Cost variable tests whether deregulation will benefit high interest cost banks more. By the same token, the IRRs may be more taxing for banks that want to pursue a growth strategy. Both the Deposit Growth and the Loan Growth variables test whether high growth banks benefit more from the deregulation. Finally, the Size variable tests whether large banks benefit more from deregulation than smaller banks.

Table 4 provides descriptive statistics for the six explanatory variables. The OLS regression results are presented in Table 5. Due to the multicollinearity between Deposit Growth and Loan Growth, these two variables are used to fit the regression model separately. When Deposit Growth is included as an explanatory variable, it is found to have a significantly positive effect on cumulative residual returns, suggesting that high-growth banks benefit more from deregulation. The Size variable is also significantly positive, indicating that larger banks tend to benefit more from deregulation than smaller banks.

When the Loan Growth variable replaces Deposit Growth as the regressor, Loan Growth is significantly positive, so is the Size variable. Interestingly, both the Net Interest Margin and the Interest Cost variables are also significantly positive, confirming that the IRRs deregulation tends to benefit profitable banks and high cost banks more. Collectively, the findings confirm that the IRRs are burdensome to banks, and the removal of the Rules increases bank value. In particular, banks which find the IRRs most constraining and banks that are in the best position to take advantage of the deregulation enjoy the biggest lift in valuation.

6. Conclusions

This paper uses the event study methodology to discriminate among several competing hypotheses regarding the Interest Rate Rules in Hong Kong. Contrary to the Consumer Council's Report that licensed banks in Hong Kong have been extracting excess profits from depositors through setting artificially low deposit interest rates under the IRRs, we find the release of the somewhat controversial Report was associated with an insignificant stock market reaction, implying that the Report had little implications for bank shareholders' wealth. Even when the government decided to start deregulating time deposit interest rates, the stock market was indifferent to the announcement, suggesting that either there was no subsidy due to the IRRs, or that any subsidies banks might have received from restricting price competition on time deposits were fully dissipated through non-price competition.

The recent announcement of complete deregulation of the IRRs, however, is found to be associated with a significant positive stock market response. The findings suggest that IRRs deregulation would benefit, rather than hurt, bank earnings. It appears that the IRRs forced banks to compete inefficiently and constrained their future growth opportunities. The deregulation was perceived by the market to add value to banks. Furthermore, large banks and banks with high growth rates, high net interest margins, and high liability costs are found to benefit most from the IRRs deregulation.

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Appendix 1

Stage One of the IRRs Deregulation:

28 February 1994 - The Consumer Council released the report "An Evaluation of the Banking Policies and Practices in Hong Kong."

4 July 1994 - The Hong Kong Monetary Authority (HKMA) released the "Study on the Consumer Council Report: Are Hong Kong Depositors Fairly Treated?"

26 July 1994 - The Hong Kong government adopted HKMA's study in response to Consumer Council's report on the Interest Rate Rules (IRRs). The interest rate cap on time deposits would be lifted in 1995. Further steps in liberalising the interest rate regime would be considered only when the impact of the change in 1995 had been fully assessed.

26 August 1994 - Following discussions with the HKMA, Hong Kong Association of Banks (HKAB) announced a program for the removal of time deposits from the IRRs starting from October 1. According to the timetable, interest rates on all deposits fixed for more than 24 hours will be freed by 1 April 1995. As for 24-hour call deposits, deregulation will be phased in by stages by gradually lowering the deposit cap during the rest of 1995, subject to the condition that both HKMA and HKAB are satisfied that the stability of the monetary and banking systems would not be undermined.

1 October 1994 - Interest rate cap on retail deposits fixed for more than one month was lifted.

3 January 1995 - Interest rate cap on retail deposits fixed for more than seven days was lifted in the second phase of the interest rate deregulation program.

14 March 1995 - The HKMA announced the decision to postpone the third phase of deregulation of time deposits, due on 1 April 1995 and covering deposits fixed for more than 24 hours, to allow HKMA and HKAB more time to assess the impact of the first two phases of deregulation. HKMA will conduct a full assessment in the third quarter of 1995 taking into account the half-year results of banks.

26 September 1995 - The government announced the decision to remove the interest rate cap on time deposits fixed for 7 days, to be effective on 1 November 1995. The government also decided that there should be no further move below 7 days and that the current program of deregulation should come to an end.

Stage Two of the IRRs Deregulation:

18 December 1998 - The HKMA released the findings and recommendations of a commissioned study, entitled "Hong Kong Banking into the New Millennium," which studies the strategic outlook of the Hong Kong banking sector over the next five years. Among the major recommendations made by the consultants included the phased deregulation of the remaining interest rate rules.

14 July 1999 - The HKMA issued a policy response to the recommendations of the Banking Sector Consultancy Study. One of the initiatives was to adopt a two-phased approach to deregulate the remaining interest rate rules, provided that the economic and financial conditions would be favourable for deregulation after extensive monitoring of the economy.

30 May 2000 - The HKMA announced the deregulation of IRRs on time deposits with a maturity of less than 7 days and the prohibition on benefits for deposits (other than Hong Kong dollar savings and current accounts), the phase 1 of the deregulation, will take effect on 3 July 2000. The deregulation of the IRRs on savings and current accounts, is scheduled to take place 12 months after the phase 1 liberalisation, subject to the prevailing economic and financial environment at the time.

Table 1: Residual Returns on February 28, 1994

This table reports residual returns from the market model for an eleven-day period surrounding the release of the Consumer Council's Report on February 28, 1994. The sample consists of 12 listed banks in Hong Kong.

Day Relative to the Announcement Day (Day 0 = February 28, 1994)	Mean Residual Return	Test Statistic
-5	0.1157%	0.1105
-4	0.2104%	0.2009
-3	0.0213%	0.0203
-2	0.0709%	0.0677
-1	0.1753%	0.1674
0	0.5104%	0.4872
+1	-1.4211%	-1.3567
+2	-0.9172%	-0.8757
+3	-0.1664%	-0.1588
+4	-0.6770%	-0.6464
+5	-0.5199%	-0.4964

Table 2: Residual Returns on July 26, 1994

This table reports residual returns from the market model for an eleven-day period surrounding the announcement on July 26, 1994 by the government to partially deregulate the Interest Rate Rules on time deposits. The sample consists of 12 listed banks in Hong Kong.

Day Relative to the Announcement Day (Day 0 = July 26, 1994)	Mean Residual Return	Test Statistic
-5	0.5868%	0.8106
-4	-1.2003%*	-1.6583
-3	0.1870%	0.2583
-2	-1.0001%	-1.3817
-1	0.5748%	0.7942
0	0.3590%	0.4960
+1	1.1391%	1.5737
+2	-0.4192%	-0.5791
+3	-0.2734%	-0.3777
+4	0.4874%	0.6734
+5	-0.4918%	-0.6794

* Indicate significance at the 10% level.

Table 3: Residual Returns on May 30, 2000

This table reports residual returns from the market model for an eleven-day period surrounding the announcement on May 30, 2000 by the Hong Kong Monetary Authority to complete the Interest Rate Rules deregulation. The deregulation covers time deposits with maturity less than 7 days, savings deposits, and demand deposits. The sample consists of 13 listed banks in Hong Kong.

Day Relative to the Announcement Day (Day 0 = May 30, 2000)	Mean Residual Return	Test Statistic
-5	-1.0156%	-0.6404
-4	-0.1702%	-0.1073
-3	0.2099%	0.1324
-2	0.1115%	0.0703
-1	-0.4521%	-0.2850
0	-0.8035%	-0.5066
+1	-1.1476%	-0.7236
+2	0.1554%	0.0980
+3	3.3643%**	2.1213
+4	1.7060%	1.0757
+5	3.3295%**	2.0993

** Indicate significance at the 5% level.

Table 4: Descriptive Statistics for 13 listed Hong Kong banks as of 1999

This table contains descriptive statistics for 13 listed banks in Hong Kong derived from 1999 financial statements. Deposit-to-Asset Ratio is the ratio of total deposits to total assets. Net Interest Margin is the ratio of net interest income to total interest earning assets. Interest Cost is the ratio of interest expenses to total liabilities. Deposit Growth is the past 5-years compound average growth rate of total deposits. Loan Growth is the past 5-years compound average growth rate of total loans. Bank Size is the log of total assets.

	Mean	Standard Deviation
Deposit-to-Asset Ratio	80.83%	6.44%
Net Interest Margin	2.61%	0.40%
Interest Cost	5.16%	0.83%
Deposit Growth	79.69%	31.39%
Loan Growth	81.49%	31.17%
Bank Size	11.15	1.29
N	13	

Table 5: Bank Characteristics and Residual Returns

This table reports the OLS results of regressing cumulative residual returns on bank characteristics. Cumulative residual returns are day 0 to day +5 residual returns from the market model for an eleven-day period surrounding the announcement on May 30, 2000 by the Hong Kong Monetary Authority to complete the Interest Rate Rules deregulation covering demand and savings deposits. Bank characteristics are derived from 1999 financial statements.

Explanatory Variable	Coefficient Estimate (t-statistic)	
Intercept	-1.1468* (-1.77)	-1.079* (-1.69)
Deposit-to-Asset Ratio	0.1725 (0.65)	-0.2942 (-1.00)
Net Interest Margin	3.2692 (0.80)	9.3747** (2.02)
Interest Cost	6.2478 (1.45)	8.1661* (1.83)
Deposit Growth	0.1835***	0.2221***
Loan Growth	(3.91)	(3.95)
Bank Size	0.0465* (1.65)	0.0480* (1.71)
Adjusted R-Square	0.48	0.49

*, **, *** Indicate significance at the 10%, 5%, and 1% levels, respectively.