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INVESTMENT INCENTIVES, RISK AND OWNERSHIP FORMS OF COMMERCIAL BANKS IN EMERGING MARKETS

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Abstract

We analyze the balance sheets of commercial banks for the three-year period (1993-1995) and make three major observations. First, we confirm earlier work that shows that risk-taking behavior is related to the degree of monitoring and control afforded by different ownership forms during a period of regulatory forbearance. Second, we measure risk using financial statement data. This is important for economies where there are limited stock market activities. Third, we add to the debate of whether contagion is a real threat among financial institutions within a group. Specifically, we show that commercial banks that are a part of a financial group do not appear to place the depositors' funds at greater than normal risk. However commercial banks that are part of a non-financial group do place depositors funds at greater risk.

Key words: ownership, commercial banks, investment incentives, regulation.
JEL Classification: G21, G32.

Introduction

Crises and failures in the deposit-taking institutions have been of great concern to regulators in both developing and developed economies for over a century – 1930s and the 1980s in the United States and the Asian financial crisis in the 1990s. Researchers, policymakers and regulators have devoted a tremendous amount of effort in determining the causes of banking crises and how best to reduce their frequency and severity, since crises and failures often trigger contagion within the financial system (Kane 1995; Angelini et.al., 1996). This paper provides evidence that ownership form and related incentives to monitor managers of commercial banks have significant impact on the riskiness of the the institution as reflected on its balance sheet composition. This is an important finding as there is increasing evidence that regulators are embracing market discipline to assist in monitoring commercial banks (Sinkey 2002).

We examine the banking sector in Jamaica – a small open emerging market economy that had recently deregulated its financial sector and opened the economy to the rest of the world.

In the late 1990's the financial sector suffered severe stress that resulted in some financial institutions failing and some commercial banks being rescued by the state owned Financial Sector Adjustment Company (FINSAC). We examine the ownership forms of commercial banks, to determine whether these factors can explain the structure of the commercial banks' balance sheet (illiquid assets, volatile liabilities, and low capital) and its risk level. We focus on how different ownership forms may impact the incentives of the managers to engage in risky behavior.

Commercial banks that undertake high-risk projects (due to inadequate monitoring) will have higher payoffs for their shareholders (managers), and also have a higher probability of failure. Our paper identifies common characteristics of weak banks and provides some theoretical justification why these characteristics would make a commercial bank weak and then show that the weak banks identified in this study were among the commercial banks that required support from FINSAC.

There are two competing hypotheses that explain how different ownership forms affect the level of risk of the firm. The risk aversion hypothesis (see Chen et al., 1990) would suggest that when managerial wealth in concentrated in the firm, managers will reduce the risk of the firm. That is, the risk of the firm reduces with increasing managerial ownership. On the other hand, the wealth transfer hypothesis suggests that manager will seek to maximize the embedded call option in their equity holdings. The managers maximize the call option by increasing the risk of the firm's assets. This would imply the riskiness of the firm will increase with increasing managerial ownership (limited external monitoring). In this paper we try to determine which of these competing hypotheses can explain the risk-taking behavior in the commercial banking sector in Jamaica. Understanding which hypothesis dominates given economic and regulatory conditions can provide useful inputs for regulators in markets making the transition to a deregulated market economy.

The empirical evidence from Saunders et al., (1990) suggests the wealth transfer hypothesis dominated. They found that the riskiness in their sample of large banks was increasing in managerial ownership. Their research was done during a period of deregulation and high interest rate volatility that increases the value of the embedded call option. On the other hand, the empirical evidence from Chen et al., (1998) broadly supports the risk aversion hypothesis. They find that the relationship between risk and managerial ownership was non-linear. At lower levels of managerial ownership the risk aversion hypothesis dominated. Their research was conducted in a period where there was greater regulation and less volatility in interest rates.

Regulators have debated the impact of the ownership ties between commercial banks, other financial institutions, and even industrial firms. In the United States, the regulators restricted direct ownership ties with industrial firms and commercial banks vice versa. On the other hand, in Germany (universal banking), Japan and other eastern economies, intimate relationships between the banks and industrial firms have been permitted and in some cases encouraged. The results in this paper show that banks that have closer ties to industrial firms have significantly riskier balance sheets and are more likely to fail.

The remainder of the paper is organized as follows: Section I examines the literature on the conflict between shareholders (managers) and bondholders (depositors). The hypotheses are developed in Section II. Section III presents a description of the data and the test results and Section IV concludes the study.

I. Manager-Depositor Conflict

Agency problems arise when the person (agent) who makes the decisions (how to invest capital) is not the same person (principal) who bears the risk (the owners of capital). In the banking sector the agent is the manager, the principal is the depositor. This separation of ownership and control allows the manager to profit by exposing the depositors' funds to greater than expected risk. When the manager invests in riskier investments then the shareholders will gain and the depositors may lose. This is so since the probability of the depositors losing their funds is increased, (higher default rates) but when the returns are positive, they will be larger, however, the depositors will not receive a higher return.

This incentive to expropriate from depositors is increased when the bank is near insolvency (Myers 1977). When a firm is close to insolvency, shareholders are more inclined to use borrowed funds to invest in high-risk projects. When these projects are successful, the payoffs will be large and the shareholder is much better off after repaying the debt. Conversely when these projects fail, they fail big, but because of limited liability it is the debt holders (depositors) who will suffer (Myers, 1977).

The literature posits several mechanisms through which these agency costs can be minimized. These include monitoring by an independent body that has a stake in the welfare of the bank (Shleifer & Vishny, 1986), aligning the interest of the agent with that of the principal (Fama and Jensen, 1983) and writing explicit contracts (Klein, Crawford and Alchian, 1978). In the banking sector, the independent body would be the regulators. Aligning the interest of the agent with the

principal would involve giving the manager an ownership stake in the bank. Writing explicit contracts, is impractical for small unsophisticated depositors in a commercial bank.

The following explains why the agency problems are particularly severe in the banking sector.

(i) Minimal Monitoring by the market

In an industrial firm, the bondholders are sophisticated investors and can to some extent monitor the actions of the shareholders/managers, by analyzing company reports and writing explicit protective covenants in the debt instruments. Small depositors are often unsophisticated, ill informed and find it too costly to assess the kind and level of risk of the bank's assets, since their deposits are relatively small. Neither do they have the option to include covenants in the deposit agreement. The only monitoring that is done is by regulators.

(ii) Capital Base

The ratio of capital (equity) to liabilities (deposits) is substantially lower in banks than in other industrial firms. Thus, the shareholders benefit from greater leverage and may therefore be more inclined to take on high-risk projects and expropriate from depositors. The shareholders get the profits and the depositors get only a fixed amount (interest) even though their capital has been subjected to a substantial amount of risk.

(iii) Concentrated Ownership/Closely held

As a single shareholder (a group of shareholders who are affiliated to each other) increases its majority ownership of the bank, the incentives to expropriate from the depositors by taking on high-risk projects increases. The incentives are increased since for example a 70% ownership means that 70% of the payoffs will accrue to the shareholders, while if the holding was 30% only 30% of the payoff would accrue. The smaller the payoff is, the lower the incentive to expropriate is. Saunders et al. (1990) provide some empirical evidence that ownership structure can predict the risk-taking behaviour of the bank, especially in a deregulated environment. Specifically, they show that banks where the managers have relatively large shareholdings are likely to engage in more risk-taking than managers that have smaller shareholdings. Our paper extends the work of Saunders et al. (1990) by incorporating different classifications of ownership forms, partitioning the sample according to membership in a pure financial groups and groups with non financial firms, and different measures of risk.

II. Hypotheses

Ownership forms

In this paper we broadly define ownership structure in terms of different organizational forms since different forms will affect how effectively managers are monitored. The four different ownership forms examined are: (i) Publicly traded stock vs. Private equity ownership, (ii) Partial foreign vs. wholly domestic ownership, (iii) The main firm within the group vs. a subsidiary, and (iv) The composition of the group to which the bank belongs – pure financial vs. non-financial. The following hypotheses test whether balance sheet composition and the overall riskiness of the banks differ based on ownership form. We use both the actual composition of the balance sheet and certain risk metrics computed using both balance sheets and income statement data.

Capital Base

Banks with small capital bases will tend to invest in high-risk assets, since they have less capital at stake and have almost unrestricted use of depositors' funds (if the regulators fail to adequate monitor the quality of the assets). During the period under study, the capital requirement of the banks was related to the amount of deposits and not the level of risk of the bank's assets. This meant that the banks were not required to hold more capital for investing in risky loans than in investing in government treasury bills.

Hypothesis 1: Banks with small capital bases are more risky than banks with larger capital bases.

Control of shareholders/managers

Where there are mechanisms to control the managers' risk-taking behaviour, these banks will invest in less risky assets. One such mechanism is the discipline from being a publicly traded bank. Partial foreign ownership may also be such mechanism especially if the parent bank is listed on the stock exchange in the host country where there is more stringent monitoring of the bank's actions than local monitoring.

Hypothesis 2A: Banks that are publicly traded are less risky than privately owned banks.

Hypothesis 2B: Banks that have foreign parent companies that are publicly traded are less risky than locally owned banks.

Group Affiliation

A non-financial group is defined as a group that is comprised of financial institutions and non-financial firms. A financial group has only firms that are primarily engaged in financial services, insurance companies, building societies etc. Investing in a related non-financial firm is riskier than making a loan in a similar non-financial firm for two reasons. First, an equity stake is riskier than a loan given the priority lenders vs. owners. Second, when the commercial bank makes loan to its affiliate it may be less willing to "pull the plug" than if the loan was made to an unrelated party. We use this hypothesis to test whether an intimate relationship between banks and industrial firms exposes the depositors to more risk.

Hypothesis 3: Banks that are a part of a non-financial group will be riskier than banks that are a part of a financial group.

Main vs. Subsidiary

Commercial banks will either be the main or parent company in their group or be a subsidiary within the group. The potential to expropriate from depositors is particularly high in the when the bank is a subsidiary as there are virtually no external market monitoring agents.

Hypothesis 4: Commercial banks that are subsidiaries within their group will be riskier than banks that are parent companies.

Definitions and Assumptions

We measure the liquidity of banks' assets to assess the riskiness of the banks' assets. We assume that the greater the liquidity of the assets is, the lower the asset's risk will be. The more volatile the liability is, the more risk the depositor faces. We consider investments with the Central Bank and the government as safe and liquid, while investments in affiliates to be illiquid and riskier assets. We define volatile liabilities as those that are more likely to be called at short notice and those with the greatest interest rate sensitivity. Therefore we define a risky bank as one that has illiquid assets, volatile liabilities and low capital. We use the definitions of Tier 1 and Tier 2 capital as defined by the Basle Agreement.

In addition to the balance sheet measures of risk, we use the standard deviation of revenue to assets, the standard deviation of operating returns to assets and the survival likelihood index as additional risk measures (see Spong and Sullivan (1998)). Operating return on assets is defined as net income + taxes+ extra-ordinary items as a percentage of total assets. Survival likelihood index is the (capital to asset ratio + average operating return on assets) standard deviation of operating return on assets. Thus, this index measures both the stability of income and capital adequacy. The higher this index is, the less risky the bank will be.

III. The Data

There were eleven commercial banks operating in Jamaica as of June 30, 1993. These same banks were also operating as of June 30, 1995. The three largest banks controlled approximately half of

the total assets in the commercial banking sector. The financial statements were obtained from Bank of Jamaica records.

To determine if the balance sheet composition was different based on the ownership form, the following computations were performed. For each of the years 1993 to 1995, the percentages of total assets to several asset and liability categories were computed. These percentages were ranked in order of liquidity of the asset and stability of the liability. For example, the bank with the largest percentage of Due from Bank of Jamaica was assigned a rank of 11 and the bank with the smallest fraction of Due from Bank of Jamaica was assigned a rank of 1. The sum of these ranks for each category was computed for each bank for each of the three years. No attempt was made to assign weights (importance) to any particular asset or liability category in computing the sum of the ranks. Therefore, the bank with the largest sum had the most liquid assets or the most stable liabilities.

The greater the capital base (equity) of the financial institution is, the more likely the financial institution will be able to "weather the storm" reducing the riskiness of the bank. The international banking community has proposed that financial institutions across the world maintain some minimum capital defined as Tier 1 and Tier 2 capital.

Tier 1 capital is defined as common shareholders' equity, minority interest in common equity accounts of consolidated subsidiaries. Tier 2 capital is defined as allowances for loan and lease losses, perpetual and long-term preferred stock (original maturity greater than 20 years) subordinated debt and mandatory convertible securities. Tier 1 capital must be at least 4% of risk weighted risk assets. In addition, Tier 1 plus Tier 2 capital (less deductions)[1] must be at least 8% of risk weighted assets. The ratio of Tier 1 plus Tier 2 to risk weighted asset is understated as the figure for provision for loan loss is not available. Most banks are above the minimum 8% even with the exclusion of the loan loss provision amount. However, the second, third and fourth largest bank capital ratios fell below the 4% minimum requirement for Tier 1 capital.

To compute the standard deviations and the survival likelihood index we use data from 1990[2] to 1995. Only consolidated financial data were available for most of the banks. Virtually all the bank had subsidiaries (even the ones that are themselves subsidiaries). Fortunately, the commercial banks represent the greater portion of both assets and revenues within their group so the figures computed should be good proxies for the true standard deviations, averages and survival indices. Standard deviations were quite high perhaps as a consequence of the high inflation rate during this period (in excess of 50% pa in some years). The survival indices for four of the banks were very low and declined over the three-year period.

Hypotheses Testing

The sample sizes (full population) involved in the analysis are small so that the power of the test is weak and even if there is statistical significance this significance may be spurious. However, if consistent correlations are obtained over the period, then likelihood of spurious results is greatly reduced[3]. We use a simple correlation test for hypothesis 1 and discrimant analysis for the other hypotheses. The discrimant analysis uses the asset and liquidity ranking and the Tier 1 and sum of Tier 1 and Tier 2 capital to place the commercial banks in the pre-assigned categories (main, subsidiary, financial group, non-financial group etc.).

Hypothesis 1: Capital Base

The Pearsons correlation was computed to determine if the bank's capital is correlated to the riskiness of the balance sheet. We use three measures of capital: Tier 1, sum of Tier 1 and Tier 2 and actual capital. We find that the correlation coefficients were not significant but they all had the

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[1] Deductions include investments in unconsolidated banking and finance subsidiaries, and reciprocal holdings of bank-issued capital securities.

[2] One of the banks started operations in 1992, therefore computations were based on data from 1992-1995.

[3] In years, when the commercial banking sector in under less stress, then the differences in group may be not as significant as the in periods when the sector is under stress.

correct sign (negative). This evidence indicates that we cannot conclude neither can we reject the hypothesis that banks with smaller capital base invest in more illiquid assets.

Hypothesis 2: Control of managers/shareholders

Public vs. Private Ownership: Table 1 shows that in all three years the analysis correctly classified all but one bank (different banks were miss-classified in different years). The analysis was statistically significant at the 5% level in all three years. Thus, there is evidence that the balance sheet composition of public banks differs from that of private banks.

Table 1

Linear Discriminant Function for Public vs. Private Ownership

Variables	1995		1994		1993	
	Private	Public	Private	Public	Private	Public
Constant	-1.86	-6.71	-3.49	-6.05	-3.22	-3.98
Asset Ranking	0.33	0.14	0.37	-1.69	-0.03	0.05
Liability Ranking	0.33	-0.46	0.58	1.45	0.85	0.17
Tier 1 Ranking	0.15	1.70	0.55	1.58	1.12	0.47
Sum Tier 1 & Tier 2 Ranking	-0.07	0.27	-0.47	0.29	-1.05	0.44
Squared Distance between Groups	7.381[b]		8.020[b]		4.835[c]	
% correctly classified	91%		91%		91%	

[b] Significant at the 2.5% level.
[c] Significant at the 5% level.

Foreign vs. Local Ownership: The results in Table 2 indicate that the procedure correctly classified all but one bank in 1995 and all in 1993 according to partial foreign and local ownership. The classifications were significant at the 2.5% level. However, in 1994, only 64% of the banks were correctly classified. There is evidence that the data can be partitioned according to foreign ownership based on balance sheet composition.

Table 2

Linear Discriminant Function for Foreign vs. Local Ownership

Variables	1995		1994		1993	
	Local	Foreign	Local	Foreign	Local	Foreign
Constant	-6.29	-1.40	-4.11	-3.02	-8.86	-1.91
Asset Ranking	1.61	0.06	-0.18	-0.26	0.20	0.01
Liability Ranking	0.19	0.30	0.90	0.77	1.58	0.62
Tier 1 Ranking	0.03	0.29	0.73	0.96	3.49	1.00
Sum Tier 1 & Tier 2 Ranking	-0.12	-0.03	-0.11	-0.37	-2.90	-.56
Squared Distance between Groups	7.635[b]		1.229		6.587[b]	
% correctly classified	91%		64%		100%	

[b] Significant at the 2.5% level.

Hypothesis 3: Financial vs. Non-financial group

The results in Table 3 show that in 1993 and 1995 all banks were correctly classified according to the pre-specified grouping. These classifications were significant at the 1% level. In 1994, only 73% were classified correctly. Thus, the evidence suggests that the balance sheet for commercial banks that are a part of a general conglomerate is different from the balance sheets of banks that are a part of a purely financial conglomerate. The evidence from this test supports the notion that commercial banks that are a part of a non-financial group may expose their depositors' funds to more risk.

Table 3

Linear Discriminant Function for Financial vs. Non-Financial Group

Variables	1995		1994		1993	
	Non-Fin	Fin	Non-Fin	Fin	Non-Fin	Fin
Constant	-4.17	-18.93	-3.30	-6.76	-4.65	-18.00
Asset Ranking	0.70	1.40	-0.19	-0.04	0.52	1.43
Liability Ranking	0.53	0.97	0.83	0.82	0.68	0.90
Tier 1 Ranking	0.63	1.31	0.91	1.19	1.60	2.96
Sum Tier 1 & Tier 2 Ranking	0.30	0.93	-0.21	-0.02	-0.59	-0.89
Squared Distance between Groups	10.815 [a]		1.675		9.414 [a]	
% correctly classified	100%		73%		100%	

[a] Significant at the 1% level.

Hypothesis 4: Main vs. Subsidiary

Table 4 indicates that there are minimal differences between the balance sheet composition of banks that are the main firms in their group and banks that are subsidiaries within their groups. The analysis correctly classified 73%, 82% and 64% of the banks in 1995, 1994 and 1993 respectively. None of these classifications was statistically significant. Thus, we can not conclude that there are any significant differences in balance sheet composition between main and subsidiary commercial banks.

Table 4

Linear Discriminant Function for Main vs. Subsidiary

Variables	1995		1994		1993	
	Main	Subs	Main	Subs	Main	Subs
Constant	-3.67	-2.12	-4.56	-3.58	-4.34	-2.65
Asset Ranking	0.93	0.15	-0.66	0.00	0.02	0.00
Liability Ranking	0.22	0.29	1.28	0.60	0.87	0.54
Tier 1 Ranking	0.22	0.26	0.41	1.08	0.91	0.84
Sum Tier 1 & Tier 2 Ranking	-0.40	0.04	0.29	-0.53	-0.54	-0.41
Squared Distance between Groups	2.48		3.76		0.972	
% correctly classified	73%		82%		64%	

The data were subjected to another series of tests to see if the results from the discriminant analysis were robust. The Mann-Whitney U non parametric test was used to determine if there were any differences in Asset and Liability composition, Tier 1 and sum of Tier 1 and Tier 2 between the two groups in each of the four categories described above.

The results for three categories – Public vs. private and local vs. foreign and main vs. subsidiary – were not consistent from year to year. For example in foreign vs. local category, difference in asset composition was statistically significant in 1993 and 1995 but not in 1994. The results for the financial conglomerate vs. non-financial conglomerate were more striking and consistent. Most of the groupings (asset and liability composition and capital ratios) were significantly different between the financial and non-financial conglomerates over the three-year period.

The results of our analysis indicate that the commercial banks that are a part of a pure financial conglomerate, or are partially foreign owned or are publicly traded tend to have more liquid assets, less volatile liabilities and are better capitalized. Based on the results of our tests we are suggesting that the investment incentives of commercial banks that have limited control mechanisms and are directly affiliated with non-financial firms, subject their depositors to more risk than commer-

cial banks that are part of financial group and that have better control mechanisms. Thus, the evidence suggests that the wealth transfer hypothesis is better able to explain the behavior of managers especially in situations where control mechanisms are weak.

Additional Risk Measures

Spong and Sullivan (1998) examined commercial banks in the Kansas City Federal District to determine if manager owned banks were riskier than hired manager banks. They found that owner-manager banks tend to be more risky if owners' wealth is well-diversified and hired manager banks also tend to be more risky if the hired manager has a significant stake in the bank (p. 33). Spong and Sullivan use the standard deviation of total revenue to average assets; Standard Deviation of Operating Return on Average Assets and a Survival Likelihood Index.

The Mann-Whitney U test was used to determine if there were significant differences in the risk measures between the difference categories. While private banks, local banks and banks that are the main firms within their group appear to have higher standard deviation of revenue to assets and operating return to assets, the differences are not statistically significant. Private banks, partially foreign owned banks and banks within a pure financial group also appear to have higher survival indices suggesting that banks in these categories are less risky. Again the differences between the categories are not significant.

Table 5

Linear Discriminant Analysis to determine if the data can correctly classify the banks according to their pre-specified groups

Panel A: Linear Discriminant Functions for Public vs. Private Ownership

Variables	Private	Public	Private	Public
Constant	-21.21	-25.29	-40.35	-54.28
Std. Dev. of Revenue/Total Asset	2.06	1.70	5.52	1.89
Std. Dev. of Operating Return to Total Assets	0.92	0.18	9.76	-5.17
Average Revenue/Total Assets	1.99	2.36	1.63	6.23
Average Operating Return to Total Assets	0.80	0.72	-0.75	3.10
Likelihood Index 1993			8.64	6.58
Likelihood Index 1994			-12.61	-11.94
Likelihood Index 1995			7.35	4.00
Squared Distance between Groups	2.061		43.722[b]	
% correctly classified	80%		100%	

[b] Significant at the 2.5% level.

Panel B: Linear Discriminant Functions for Partial Foreign vs. Local Ownership

Variables	Foreign	Local	Foreign	Local
Constant	-25.32	-28.36	-53.07	-133.06
Std. Dev. of Revenue/Total Asset	2.43	1.78	4.03	6.78
Std. Dev. of Operating Return to Total Assets	-2.52	6.20	-10.41	52.05
Average Revenue/Total Assets	2.82	0.60	5.86	-6.16
Average Operating Return to Total Assets	-3.56	6.63	-24.37	64.58
Likelihood Index 1993			1.26	26.64
Likelihood Index 1994			-1.42	-41.71
Likelihood Index 1995			4.11	13.45
Squared Distance between Groups	42.866[a]		354.028[a]	
% correctly classified	100%		100%	

[a] Significant at the 1% level.

<div align="right">Table 5 (continuous)</div>

Panel C: Linear Discriminant Functions for Financial vs. Non-Financial Group

Variables	Non-Fin	Fin	Non-Fin	Fin
Constant	-28.14	-20.81	-61.68	-39.91
Std. Dev. of Revenue/Total Asset	5.71	2.04	16.54	2.65
Std. Dev. of Operating Return to Total Assets	2.04	1.10	11.95	5.78
Average Revenue/Total Assets	1.41	1.90	-0.31	3.09
Average Operating Return to Total Assets	3.75	0.72	8.66	-1.54
Likelihood Index 1993			5.70	8.68
Likelihood Index 1994			-6.77	-13.51
Likelihood Index 1995			4.92	6.99
Squared Distance between Groups	11.445[a]		58.544[b]	
% correctly classified	90%		100%	

[a] Significant at the 1% level.
[b] Significant at the 2.5% level.

Panel D: Linear Discriminant Functions for Main vs. Subsidiary

Variables	Main	Sub	Main	Sub
Constant	-25.14	-21.14	-49.88	-40.01
Std. Dev. of Revenue/Total Asset	4.05	2.21	8.68	5.62
Std. Dev. of Operating Return to Total Assets	-1.12	1.06	3.73	6.08
Average Revenue/Total Assets	2.13	1.89	2.81	2.62
Average Operating Return to Total Assets	0.09	0.80	-2.12	-0.43
Likelihood Index 1993			8.86	8.36
Likelihood Index 1994			-12.86	-12.56
Likelihood Index 1995			7.22	6.79
Squared Distance between Groups	4.860		9.856	
% correctly classified	100%		100%	

We could not make any inferences from the univariate possibly due to the small sample sizes, so we used discriminant analysis, which uses more than one variable to determine if there are differences across the pre-determined categories. We find that these alternate risk measures provide stronger evidence that the risk profile of the commercial banks differs according to different ownership forms and different control mechanisms (see Table 5). Specifically, we find that publicly traded banks and significantly different at the 2.5% level from the private banks when the survival index is included. The differences between the ownership (foreign vs. local) and the banks that are part of a pure financial group and a non-financial group are statistically significant at the 2.5% level. The difference in risk between banks that are the main firm or a subsidiary within their group is not significant although the analysis correctly classifies all the banks.

IV. Conclusions

We find that the wealth transfer hypothesis better describes managerial behavior that the risk aversion hypothesis during the 1992-1995 period. One possible explanation is the regulatory environment. The regulatory environment in Jamaica during this period is similar to the environment in Saunders et al. (1990) and quite different from Chen et al. (1998). The degree of regulatory oversight is an important determinant of managerial behavior as the regulators are the only effective monitor where other market based controls are weak or non existent.

In addition, this paper adds to the debate on whether or not there should be strict separation between commercial banks and other firms. We find that commercial banks that are part of a pure

financial group do not appear to put depositors' funds at excess risk. However, we find much stronger evidence that the managers of commercial banks that acquire or are a part of non-financial groups have the incentive to invest in riskier assets that ultimately put depositors' funds and the entire banking sector at risk.

Five commercial banks that were identified as being weak or where the managers/shareholders have greater incentives to engage in risk taking behaviour were part of a non-financial group. The likelihood survival index for these banks was also very low. These banks either failed or received financial support from FINSAC. There were two other banks (small and relatively newly established) that were rescued by FINSAC, that did not appear as weak or having poor control mechanisms. These newer banks may have failed because of contagion and flight to quality to larger more established banks.

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