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ASSESSING THE IMPACT OF FINANCIAL INSTABILITY: THE JAMAICAN CASE STUDY

David Tennant and Claremont Kirton [*]

I. INTRODUCTION

The disastrous effects of recent financial sector crises in South East Asia and Latin America have generated lengthy debates on the causes and appropriate responses to such crises. The almost exclusive focus on these issues has, however, led to a dearth of systematic and thorough studies of the impact of financial instability and crises on financial sector intermediation, and on the finance-growth relationship. It is now widely accepted that financial institutions can facilitate economic growth by mobilizing savings, allocating these savings to the most productive investments, and by enhancing the smooth flow of trade required in any market-driven economy (Levine 1997: 692-701). However, the sector's ability to effectively and efficiently perform these functions is heavily dependent upon the stability of the financial system. The theoretical literature strongly suggests that financial instability can undermine the intermediation process by reducing funds available for investment (Bernanke 1983: 257 and Stiglitz, 1993: 26), by causing inefficient allocation of investments (Williamson & Mahar 1998), and by precipitating a crippling of the payment system with the onset of financial panic (Diamond & Dybvig 1983: 403).[1]

This paper seeks to estimate the extent to which these theorized impacts of financial instability impeded the ability of Jamaican financial institutions to facilitate economic growth. Conclusions are made regarding the major channels through which financial instability affects the real sector, and the types of institutions that are most harshly affected by financial instability, and therefore necessitate closer scrutiny by financial regulators and supervisors.

The paper will proceed as follows: Section 2 introduces the Jamaican case study by describing the financial sector crisis that occurred in mid to late 1990s; Section 3 highlights the methodology, data and control group

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countries used in this study; Section 4 estimates the effect of financial instability on financial sector intermediation in Jamaica, by examining the impact of instability on three major channels through which the sector facilitates economic growth and on the operational efficiency of the financial institutions; and Section 5 summarizes and concludes the study.

II. THE JAMAICAN FINANCIAL SECTOR CRISIS

The major cause of the Jamaican financial crisis was an unduly-hasty liberalization of the financial sector, without prior improvement to the regulatory and supervisory framework (Kirkpatrick & Tennant 2002: 1935-1936). The Jamaican government liberalized the financial sector between 1986 and 1991, as part of World Bank Structural Adjustment and IMF Stabilization Programmes. This involved, *inter alia,* removing the ceilings placed on banking system credit, the total deregulation of savings rates, and dismantling exchange controls.

Following liberalization, the Jamaican financial sector experienced rapid expansion and deepening in early to mid 1990s. The operations of commercial banks and nonbank financial intermediaries (NBFIs) increased significantly, and new large financial conglomerates emerged (Stennett, Batchelor & Foga 1998: 12). These conglomerates ventured aggressively into more innovative financial activities and into acquisitions and operations of many real sector projects. There was also rapid expansion of lending to the private sector, but it is argued that this expansion was unsustainable, as risks were not properly assessed, collateral was inadequate, and loans were allocated mainly for consumer-oriented activities (Green 1999: 4).

It is therefore not surprising that private sector credit, which grew by almost 70% in 1993, slowed significantly to 25% in 1996, and non-performing loans as a percentage of total loans by commercial banks grew from 7.4% in 1994 to 28.9% in 1997. During the mid to late 1990s, there was a high level of problematic related-party loans between insurance companies and their affiliated commercial banks, which also eventually experienced illiquidity problems mainly because of imprudent investments of short-term savings in long-term assets. These illiquidity problems were further compounded by impending insolvency, as there was a significant deterioration in the banking system's capital base (Kirkpatrick & Tennant 2002: 1936). The problems in the financial sector reached crisis proportions when a downturn in the equity and real estate markets precipitated illiquidity in the life insurance industry, which quickly spread to the affiliated commercial banks. There was a subsequent 'flight to quality' within the domestic financial system, with depositors withdrawing their

savings from the perceived weak indigenous institutions, and depositing them with the branches of foreign banks.

The government was then forced to intervene so as to prevent a collapse of the financial sector. Legislation was speedily introduced to strengthen the regulatory framework, and two institutions (FIS and FINSAC)[2] were created by government to facilitate the resuscitation of failed banks and to proceed with the restructuring and reorganization of the financial sector. Whereas the cost of this intervention was massive, the World Bank (2003: 88) notes that the resolution of the crisis was one of the world's fastest, as after only about five years of operation, FINSAC was closed.

The sector that has emerged following the Jamaican financial crisis is now considerably different in size, structure and scope. While the sector is still served by all major types of financial institutions, the numbers and size of these institutions have been reduced. Between 1990 and 1999, the number of commercial banks declined from 11 to 6, merchant banks from 21 to 13, building societies from 6 to 5, credit unions from 80 to 66 and life insurance companies from 10 to 7. Of these types of institutions, commercial banks increased their dominance in the financial landscape, with their share of total assets increasing from 62.3% in 1990 to 68.0% in 2001. The World Bank (2003: 88) notes that these changes in the Jamaican financial sector have all "… led to a much stronger financial system, with much better regulation and supervision, but a system that is more concentrated and dominated by fewer banks, and… that is performing less intermediation because the assets corresponding to the deposits are now largely government debt rather than private credit."

III. METHODOLOGY, CONTROL GROUP AND DATA

Methodology

The World Bank's (2003: 88) suggestion that the Jamaican financial sector is now performing less intermediation following the period of instability has important implications for the sector's capacity to foster economic growth. This study investigates these implications by conducting an analysis of the impact of financial instability on the performance of the respective institutions in fulfilling their theorized roles, and in maintaining operational efficiency.

Performance indicators for each of the theorized roles and for the operational efficiency of financial institutions were first developed.[3] The impact of financial instability on these indicators was then isolated through the use of counterfactual approaches, which estimate the impact of financial sector instability as the difference between the actual performance

of the financial sector observed consequent to the occurrence of financial instability, and the performance that would have been expected in the absence of such instability.

In this study we estimate the counterfactual using the *before-after* and *with-without* approaches. The *before-after* approach compares the performance of the Jamaican financial sector during the period of financial instability with the performance prior to the onset of instability.[4] Because widespread instability in the Jamaican financial sector began in 1995 and escalated into a full-blown crisis in 1996/1997, a three-year period of study has been adopted. The *before* period is 1992 to 1994, while the *after* period is 1995 to 1997. Averages for performance indicators are calculated for each of these periods, and differences between the averages for the *after* and *before* periods are calculated, to determine the degree to which the performance of the functions have improved, worsened or remained unchanged.

This approach is, however, biased, as it attributes all observed changes in financial sector performance to the occurrence of financial instability.[5] In order to overcome this limitation, the *with-without* approach has also been used to compare financial sector performance in countries with financial instability and financial sector performance in a control group of countries without financial instability.[6] This approach is designed to overcome the inability of the *before-after* approach to distinguish between changes in financial sector performance caused by both financial instability and other factors.[7] The *with-without* approach entails a *before-after* comparison of financial sector performance for countries with instability to that for countries without instability.[8]

The *with-without* approach required the selection of a control group of countries that faced conditions very similar to those in Jamaica, and that did not experience financial instability during the same period. Once these countries were selected, their data were used to calculate the performance indicators previously mentioned, which were then averaged for the same *before* and *after* periods as used in Jamaica. The difference between the *before* and *after* figures for the control group countries were computed and compared to the differences computed for Jamaica. Where the performance indicators should be increasing, financial instability is shown to have a negative impact on the function being examined if the difference between the *before* and *after* figures for the control group countries is larger than that for Jamaica. Similarly, when the performance indicator being studied should be decreasing, and the difference calculated for the control group countries is smaller than that for Jamaica, then financial sector instability would have been shown to have a detrimental impact on the performance

of that function. The accuracy of these results is, however, based on the assumption that *with* and *without* countries face similar domestic non-financial and external conditions. No two countries are exactly the same and so biases may have been introduced from a number of sources, but where those biases can be identified, they are highlighted and attempts are made to account for them in the analysis.

Control Group

Countries in the control group had to all face very similar internal and external conditions to those in Jamaica. The countries best meeting this criterion and for which sufficient data are available are Barbados, Belize, Guyana, and Trinidad and Tobago. These countries, along with Jamaica, share a number of common opportunities and threats since they are all small developing states in the Caribbean. They all have open economies, with tourism and a small number of resource products being their major income earners (Girvan, 1997: 11). The stagnating market for primary commodities, as well as the risks facing the tourism industry have made growth and development for these economies very challenging. As such, all faced severe economic problems in the 1980s and early 1990s, and were forced to seek assistance from multilateral financial institutions, including the IMF and/or the World Bank. Under the strictures of stabilization and structural adjustment programmes, all the five countries adopted similar market-oriented strategies, including, *inter alia*, trade and financial liberalization, privatization, tax reforms, and reductions in public spending.[9] In addition to these reforms, regional integration was identified as another possible solution to the economic problems being faced (Hilaire, 2001).

The structure of the financial systems in many Caribbean countries is also very similar. Commercial banks are the dominant institutions throughout all the countries studied, with finance companies, mortgage banks, building societies, development banks, national pension schemes, insurance companies and credit unions all having small shares of total financial assets (Danns, 1996). The regulation and supervision of the domestic financial institutions is carried out primarily by the central banks in each country, and the regulatory and supervisory standards tend to be similar due to the existence of the Caribbean Group of Bank Supervisors, which seeks to introduce minimum regulatory and supervisory standards for banks and other deposit-taking financial institutions (Worrell, Cherebin & Polius-Mounsey, 2001).[10]

Apart from these similarities between Jamaica and the control group countries, there was the additional criterion that for the control group

countries to fit into the '*without*' classification, they should not have experienced financial instability in the period 1992 to 1997. The literature reviewed noted that the financial systems in Barbados, Guyana and Belize have remained fairly stable over the review period, and in Trinidad and Tobago, although a number of financial institutions received liquidity support from the government in the 1980s, there was no systemic instability, as these institutions were restructured, and strengthened prudential standards were adopted.[11]

Data

The data have been collected primarily from the IMF's International Financial Statistics Yearbook, as well as from each country's central bank.[12] Data availability was, however, problematic, as on a number of occasions the requisite data were only available for the late 1990s, or were available for certain types of institutions but not for others. These problems restricted the range of variables that could be included in the analysis.

IV. Estimating the Effect of Financial Instability on Financial Sector Intermediation and Economic Growth

The counterfactual approaches described in the previous section have been used to examine the impact of financial instability on the performance of Jamaican financial institutions in fulfilling the functions which are expected to lead to economic growth. This section therefore examines the impact of financial instability on: the mobilization and transfer of funds to the real sector; the performance of the financial institutions in allocating resources to the most productive uses; and the degree to which monetization and the ease of trading is facilitated. The effect of financial instability on the operational efficiency of financial institutions, and ultimately on economic performance in the real sector will also be examined.

The Effect of Financial Instability on Savings Mobilization and the Transfer of Funds to the Real Sector

The mobilization of savings and transfer of funds to the real sector is one of the most basic channels through which the financial sector fosters economic growth. Stiglitz (1993: 26), however, notes that with severe financial instability, this channel can be completely closed, as depositors will withdraw their funds from financial institutions, thereby causing a drastic contraction of credit. The impact of financial instability on savings, loans and financial investments[13] in Jamaica is examined in the paragraphs that follow:

The Impact of Financial Instability on Savings Mobilization

The impact of financial instability on savings mobilization is first estimated by calculating the *before* and *after* averages of total savings[14] as a percentage of current GDP. Whilst there is a positive difference between the *before* and *after* figures for Jamaica (0.94), the average difference between the *before* and *after* figures for the without countries was considerably larger (4.58). [15] The *with-without* approach thus suggests that the period of financial instability in Jamaica had a negative impact on the financial sector's performance in mobilizing savings. This is further illustrated when the *before* and *after* figures for the average annual growth rate of the real value of total savings are examined. Here both the *before-after* and *with-without* approaches confirm that the average annual growth in savings mobilization was much slower as a result of financial instability, as the difference in the growth of savings between the *before* and *after* periods was negative (-6.21), and significantly smaller than the average difference for the *without* countries (4.50). The inference here is that financial instability negatively affects financial intermediation and growth creation through diminished performance of the financial sector in mobilizing savings. The impact of instability on savings mobilization by type of financial institution is differentiated by comparing each institution's *before* and *after* figures for average annual growth of real savings mobilized (Table 1). These results highlight the fact that savings mobilization by all the different types of financial institutions, with the exception of FIA Institutions, worsened during the period of financial instability. Commercial banks (-6.13), building societies (-19.38), and life insurance companies (-7.10) all experienced declines in real savings. While credit unions had a positive difference between the *before* and *after* figures (4.02), this difference was much smaller than that in Barbados (16.95), suggesting (from the *with-without* approach) that financial instability had an adverse effect here as well.

Interestingly though, both the *before-after* and *with-without* approaches suggest that saving mobilization in FIA Institutions improved during the period of financial instability. However, here the figures are misleading, as the relatively large positive difference (7.15) results from the fact that FIA Institutions had a much larger decline in saving mobilization in the *before* period (average rate of -16.52%) than in the *after* period (-9.37%). This seems to suggest that not only was saving mobilization by FIA Institutions adversely impacted by financial

Table 1 - Average Annual Growth of Real Savings Mobilized by Financial Institutions

			Avg. Ann. Growth of Savings (%)					Difference				
	Country		Com Bnk	FIA Insts	Bldg Soc	Cred Uns	Life Ins	Com Bnk	FIA Insts	Bldg Soc	Cred Uns	Life Ins
With	Jamaica	Before	4.16	-16.52	17.42	7.04	-2.24	**-6.13**	**7.15**	**-19.38**	**4.02**	**-7.10**
		After	-1.97	-9.37	-1.96	11.06	-9.34					
Wt'out	T & T	Before	2.32	-1.89	-6.27		3.82	2.12	4.99	9.37		-2.51
		After	4.44	3.10	3.10		1.31					
	Barbados	Before	3.82	-3.46		-5.69		2.18	-2.69		16.95	
		After	6.00	-6.15		11.26						
	Belize	Before	-0.43					4.21				
		After	3.78									
	Guyana	Before	-0.59	3.52	8.41			10.81	1.88	6.72		
		After	10.22	5.40	15.13							
Average Difference Without Countries								**4.83**	**1.39**	**8.05**	**16.95**	**-2.51**

instability, but also that these institutions were particularly susceptible, as they were affected before the full impact of the crisis.

The impact of financial instability on the relative performance of the remaining institutions is assessed using the *with-without* approach, by subtracting the difference for each of the Jamaican financial institutions, from the average difference of their counterpart institutions in the control group countries.[16] This approach suggests that the rate of growth of savings mobilization by building societies was most harshly affected by financial instability. The second most harshly affected institutions were credit unions, followed by commercial banks and life insurance companies.

Effectiveness in savings mobilization is not only dependent on volume or growth of deposits collected, but is also a function of how effective the institutions are at using their assets to mobilize the maximum amount of savings. The degree to which financial instability impacts upon this measure of effectiveness is examined by calculating the *before* and *after* averages for the ratio of savings to total assets for each type of institution (Table 2) on the next page.

This ratio should be interpreted carefully, as financial instability adversely affects both the level of savings mobilized and the value of total assets.[17] Therefore in Jamaica, a positive difference between the *before* and *after* periods is not necessarily caused by increased savings mobilization, but may simply mean that total assets decreased by more than decreases in savings mobilization.

This is evident when the *before-after* differences for commercial banks and life insurance companies are examined. In both of these instances, positive differences are derived (0.45 and 1.18, respectively), which is reflective of a more rapid decline of total assets following financial instability, than the decline in savings. This has important implications, since it suggests that prior to the period of instability these institutions were not effectively using their assets to maximize the amount of savings mobilized, as when forced by instability in the sector to drastically reduce the growth of their asset base, they were able to do so without proportionately decreasing the growth of savings. It is therefore not surprising that commercial banks and life insurance companies, institutions with typically the largest asset sizes, have experienced increases in the savings to total assets ratio following the crisis. Institutions with smaller asset bases - FIA Institutions, credit unions and building societies - experienced decreases in their savings to assets ratios during the period of financial instability, reflecting reduced effectiveness in savings mobilization with the limited and declining resources available.

Table 2 - Savings as a % of Total Assets

			Savings/Total Assets (%)					Difference				
	Country		Com Bnk	FIA Insts	Bldg Soc	Cred Uns	Life Ins	Com Bnk	FIA Insts	Bldg Soc	Cred Uns	Life Ins
With	Jamaica	Before	71.67	56.05	87.19	85.36	3.76	**0.45**	**-18.55**	**-4.75**	**-2.33**	**1.18**
		After	72.12	37.50	82.44	83.03	4.94					
Wt'out	T & T	Before	63.66	63.02	25.21		11.69	-7.05	-14.80	0.86		0.58
		After	56.61	48.22	26.08		12.26					
	Barbados	Before	84.45	80.66		12.47		-0.72	-5.88		4.76	
		After	83.73	74.79		17.23						
	Belize	Before	78.86					0.73				
		After	79.59									
	Guyana	Before	83.80	58.68	88.30			-3.79	-19.98	-2.21		
		After	80.00	38.70	86.09							
Average Difference Without Countries								**-2.71**	**-13.55**	**-0.67**	**4.76**	**0.58**

Finally, the impact of financial instability on the savings mobilized by the Jamaica Stock Exchange is highlighted by calculating the *before* and *after* averages for the value of shares issued as a percent of current GDP. A negative difference for the value of shares issued on the Jamaican Stock Exchange (-1.96), and the fact that this figure is smaller than that of the Trinidadian Stock Exchange (0.66), indicate that both the *before-after* and *with-without* approaches conclude that savings mobilized by the stock exchange are also negatively impacted by financial instability. This result for savings mobilization by the stock market is not surprising, as a severe downturn in the stock market was a part of the financial instability experienced in Jamaica.

The Impact of Financial Instability on Loans

Financial instability not only affects economic growth through savings mobilization, but also can potentially impact transfer of funds to the real sector through loans and financial investments. The impact of instability on issuance of loans is first isolated by calculating *before* and *after* figures for total loans expressed as a percentage of current GDP. The fact that the difference between the *before* and *after* averages for Jamaica is positive (4.57) and is larger than the average difference for *without* countries (4.36), suggests that both the *before-after* and *with-without* approaches would conclude that financial instability has a positive effect on the ratio of total loans to GDP.

This result is surprising, especially considering Stiglitz' (1993: 26) prediction of a contraction in credit resulting from periods of severe financial instability. However, when *before* and *after* figures for the average annual growth of total real loans issued by the financial sector are examined the results more closely conform to behaviour predicted by the theoretical models. Here the difference between the *before* and *after* periods for Jamaica is -3.61, while the average difference for the control group countries is 8.11. This suggests that both *before-after* and *with-without* approaches indicate that financial instability in Jamaica caused a decline in the growth of loans issued by the financial sector. Whereas financial instability in Jamaica did not result in the overall contraction in credit predicted by Stiglitz (1993: 26), the decline in the growth of loans issued is significant, and could quickly erode previous gains if the impact of instability is not expeditiously reversed.

The impact of financial instability on average annual growth of loans issued by each type of financial institution is also disaggregated (Table 3).

Table 3 - Average Annual Growth of Real Loans by Financial Institutions

			Avg. Ann. Growth of Loans (%)				Difference			
Country			Com Bnk	FIA Insts	Bldg Soc	Cred Uns	Com Bnk	FIA Insts	Bldg Soc	Cred Uns
With	Jamaica	Before	7.81	-15.94	12.44	2.34	**-8.21**	**3.91**	**-3.87**	**5.04**
		After	-0.40	-12.03	8.57	7.38				
Wt'out	T & T	Before	-10.33	-3.88	-6.55		19.39	12.13	2.64	
		After	9.06	8.25	-3.91					
	Barbados	Before	4.72	1.15		-6.94	0.78	-6.44		12.51
		After	5.50	-5.29		5.57				
	Belize	Before	0.64				5.04			
		After	5.68							
	Guyana	Before	3.18	5.85	51.61		20.91	13.38	-29.69	
		After	24.09	19.23	21.92					
Average Difference Without Countries							**11.53**	**6.36**	**-13.53**	**12.51**

Here the *before-after* approach suggests that the growth in loans issued by commercial banks and building societies is negatively impacted by financial instability, as evidenced by the negative differences between the *before* and *after* averages (-8.21 and -3.87, respectively). Conversely, the positive differences for FIA Institutions and credit unions (3.91 and 5.04, respectively) suggest that their growth in loans is positively impacted by financial instability. Results of the *with-without* approach, however, lead to different conclusions. The fact that the differences for Jamaican FIA Institutions and credit unions are significantly smaller than the averages for the control group countries (6.36 and 12.51, respectively) suggests that financial instability actually caused a worsening in the issuance of loans in these institutions. Also, the fact that the average difference between the *before* and *after* figures for the control group building societies (-13.53) is smaller than that of Jamaica, suggests that the building societies' performance in the growth rate of loans issued actually improved as a result of financial instability. This result should, however, be viewed with caution, as the implied improved performance of Jamaican building societies consequent to financial instability, may actually only be due to the fact that building societies in Guyana performed extraordinarily poorly (with a *before-after* difference of -29.69). If the figures for Guyana are ignored, and the *before-after* differences for Jamaican and Trinidadian building societies are compared, then it is evident that the performance of Jamaican building societies worsened as a result of instability. Bearing this in mind, when the institutions are ranked in terms of their susceptibility to worsened performance in the growth of real loans, commercial banks are shown to be the most susceptible, followed by credit unions, building societies and FIA Institutions. [18]

The impact of financial instability on the effectiveness with which the institutions maximize the disbursal of loans with the resources at their disposal, is also examined by highlighting the *before* and *after* averages for the ratio of loans to total assets (Table 4).

The analysis here is very similar to that of the savings to assets ratio, as institutions with typically large asset bases - commercial banks and building societies - have experienced increases in their loans to assets ratio as a result of the period of financial instability (with *before-after* differences of 5.45 and 7.61, respectively). This has important implications, because it confirms that these institutions were not effectively using their assets to maximize the amount of loans issued, as when forced by instability in the sector to drastically reduce the growth of their asset base, they were able to do so without proportionately decreasing the growth of

Table 4 - Loans as a % of Total Assets

			Loans/Total Assets (%)				Difference			
Country			Com Bnk	FIA Insts	Bldg Soc	Cred Uns	Com Bnk	FIA Insts	Bldg Soc	Cred Uns
With	Jamaica	Before	33.79	42.63	32.02	72.94	**5.45**	**-8.34**	**7.61**	**-9.54**
		After	39.23	34.28	39.63	63.40				
Wt'out	T & T	Before	51.50	52.27	58.11		-14.67	-10.15	-5.68	
		After	36.84	42.12	52.43					
	Barbados	Before	54.07	91.96		73.83	-6.57	-3.07		1.55
		After	47.50	88.89		75.38				
	Belize	Before	67.01				0.75			
		After	67.76							
	Guyana	Before	26.46	49.68	17.70		17.54	-4.78	17.06	
		After	44.00	44.90	34.76					
Average Difference Without Countries							**-0.74**	**-6.00**	**5.69**	**1.55**

loans. Not surprisingly, institutions with typically smaller asset bases, credit unions and FIA Institutions, have experienced a decline in their loans to assets ratios because of financial instability (with *before-after* differences of -9.54 and -8.34, respectively), since they had less room for manoeuvring at the onset of the crisis.

The Impact of Financial Instability on Financial Investments

The impact of financial instability on financial investments is analysed by first examining the *before* and *after* figures for total financial investments as a percentage of GDP. The difference between the *before* and *after* averages for Jamaica is positive (2.73) and is larger than the average difference for the without countries (1.84); this suggests that financial instability has a positive effect on the ratio of total financial investments to GDP. This is confirmed when the counterfactual approaches are applied to the average annual growth of total financial investments. The positive and relatively large difference between the *before* and *after* figures for Jamaica (11.02), as compared to an average difference of 1.55 for the without countries, indicates that financial instability in Jamaica caused a significant increase in the growth of financial investments issued by the financial sector.

When these average annual growth figures are disaggregated by institution, it is clear that financial instability generated increases in the growth of financial investments by both commercial banks and FIA Institutions (with *before-after* differences of 15.02 and 4.20, respectively). However, the *before-after* approach suggests that the improved performance was more significant for commercial banks, while the more robust *with-without* approach clearly shows that FIA Institutions were the better performers in this respect (as the average differences in the without countries for commercial banks and FIA Institutions were 1.72 and -54.37, respectively).

Not surprisingly, very similar results are derived when the *before-after* figures for the average annual growth of the financial investments to total assets ratio are derived. Here, both counterfactual approaches suggest that commercial banks' and FIA Institutions' performance in issuing financial investments with the available resources improved as a result of financial instability, as evidenced by the relatively large positive difference between the *before* and *after* periods for Jamaica (1.45 and 21.66, respectively, as compared with average differences for the without countries of -1.01 and 11.42). Also as before, the FIA Institutions' performance in this respect is much better than that of the commercial banks.

The strong improvement in the performance of the commercial banks and FIA Institutions in the issuance of financial investments consequent to financial instability is initially surprising, but is at least partially explained when the allocation of such financial investment is examined. Also surprising is the fact that the savings to total assets and loans to total assets ratios for the larger institutions increased as a result of the crisis. This result, however, highlights that financial instability can cause improved performance when more stringent conditions cause large and inefficient institutions to tighten their belts. Notwithstanding this, it was evident that the overall performance of the financial sector in increasing the mobilization of savings and the issuance of loans to the real sector worsened as a result of financial instability.

The Impact of Financial Instability on the Performance of Financial Institutions in Allocating Resources to the Most Productive Uses

Financial instability is expected to adversely impact the performance of the financial sector in allocating resources to the most productive uses. In this section, the *before-after* and *with-without* counterfactual approaches are used to examine effects of instability on allocation of loans and investments in financial instruments. Additionally, the *before-after* approach is used to test the impact of instability on the quality of institutions' borrowers and investors.

The Impact of Financial Instability on the Allocation of Loans

Before making an assessment of the impact of financial instability on the allocation of loans, a measure of such effectiveness is determined. In previous studies[19] the performance of financial institutions in effectively allocating credit was judged either by: (1) the degree to which loans were distributed to sectors that have the largest shares of GDP; or (2) the extent to which increasing amounts of credit were allocated to sectors with the fastest growth in production. These criteria are reused in assessing the impact of financial instability on the effectiveness of credit allocation.

In the first method, the sectors with the three largest and three smallest shares of GDP in both the *before* and *after* periods are determined for Jamaica, and then the share of loans given to these sectors in each of these periods is calculated. The difference between the *before* and *after* periods for the share of loans allocated to the three largest sectors is then calculated for each type of institution. If this difference is negative we conclude that financial instability has had an adverse impact on the allocation of credit, as the sectors with the best history of creating growth have received less credit consequent to the crisis. The same procedure is followed for the share of loans distributed to the three sectors with smallest

shares of GDP. Financial instability is shown to have an adverse impact on the allocation of credit if the difference here is positive, as the sectors least likely to create growth have received a larger share of total loans.

The *with-without* approach is also applied by following the same procedure for each of the control group countries. In this approach, financial instability will have a negative impact on effective credit allocation if: (i) the difference between the *before* and *after* figures for the largest sectors for Jamaica is smaller than the average difference for the largest sectors in the control group countries; and (ii) for the smallest sectors, if the Jamaican *before-after* difference is larger than the average difference for the control group countries.

The same methodology is used when assessing the allocation of loans based on growth performance of the sectors. As such, financial instability is shown to have a negative impact on effective credit allocation if: (i) the difference between the *before* and *after* figures for the fastest growing sectors for Jamaica is smaller than the average difference for the fastest growing sectors in the control group countries; and (ii) for the slowest growing sectors, if the Jamaican *before-after* difference is larger than the average difference for the control group countries.

The *before* and *after* figures for the share of total loans given by commercial banks, FIA Institutions and building societies to the sectors with the three largest and three smallest shares of GDP, are first calculated (Table 5). The results show that on using the *before-after* approach, credit allocation by all of the financial institutions studied has worsened as a result of financial instability. An examination of the difference between the *before* and *after* periods for Jamaica shows that in each type of financial institution, loans to the three largest sectors decreased during the period of instability. FIA Institutions were shown to be the most susceptible to worsened performance consequent to periods of financial instability, as they had by far the largest decline in loans to the largest sectors (with a difference of -11.54). They were followed by commercial banks (-6.56) and building societies (-6.40). As expected, loans to the smallest sectors increased consequent to financial instability for FIA Institutions (9.85) and commercial banks (5.93), and remained unchanged for building societies, which did not distribute any loans to the three smallest contributors to GDP.

Table 5 - Performance in the Allocation of Loans. Share of Total Loans for the Sectors with the Three Largest & Smallest Shares of GDP

			Share of Total Loans (%)						Difference					
			% of Com Bank Loans		% of FIA Insts Loans		% of Bldg Soc Bank Loans		% of Com Loans		% of FIA Insts Loans		% of Bldg Soc Loans	
	Country		Lrgst. Sects.	Smlst. Sects.	Lrgst. Sects.	Smlst. Sects.	Lrgst. Sects.	Smlst. Sects.	Lrgst. Sects.	Smlst. Sects.	Lrgst. Sects.	Smlst. Sects.	Lrgst. Sects.	Smlst. Sects.
With	Jam.	Bef	35.14	36.16	47.79	28.39	95.88	0.00	**-6.56**	**5.93**	**-11.54**	**9.85**	**-6.40**	**0.00**
		Aft	28.58	42.09	36.25	38.24	89.48	0.00						
W'out	T & T	Bef	22.29	46.34	19.11	32.45			-9.54	0.47	-6.59	0.79		
		Aft	12.75	46.81	12.51	33.25								
	B’dos	Bef	67.61	8.24					10.50	-4.13				
		Aft	78.11	4.12										
	Bel.	Bef	38.85	0.90					7.29	0.49				
		Aft	46.13	1.39										
	Guy.	Bef	36.78	36.37					4.31	16.17				
		Aft	41.08	52.53										
Average Difference Without Countries									**3.14**	**3.25**	**-6.59**	**0.79**		

There is only sufficient data to reliably apply the *with-without* approach to commercial banks, and when this is done, the results confirm the conclusions made using the *before-after* approach. Here the Jamaican difference for the largest sectors (-6.56) is substantially smaller than the average difference for the control group commercial banks (3.14), and, similarly, the Jamaican difference for the smallest sectors (5.93) is larger than the average control group difference (3.25). These results strongly suggest that in Jamaica the allocation of credit to the sectors with the largest shares of GDP was less effective during the period of financial instability.

The *before-after* figures for the growth of loans to the sectors with the fastest and slowest growth in production confirms this conclusion. Here, even when the allocation of credit is assessed by virtue of growth performance of the sectors, financial instability still has an adverse effect on the performance of commercial banks and FIA Institutions. Jamaican commercial banks had the largest decline in growth of loans to the fastest growing sectors (-22.89) consequent to financial instability. [20] The performance of the FIA Institutions also worsened because of instability, as the difference in growth of loans to the fastest growing sectors between the *before* and *after* periods was -1.22 (compared with a difference of 31.02 in Trinidad and Tobago), and was 8.36 for the slowest growing sectors (-2.56 in Trinidad and Tobago). It is therefore evident that irrespective of the method of assessment, the financial institutions' performance in allocating credit was adversely affected by financial instability.

The Impact of Financial Instability on the Allocation of Financial Investments by Commercial Banks and FIA Institutions

This section examines the impact of financial instability on the allocation of financial investments by commercial banks and FIA Institutions.[21] In so doing, a measure of the effectiveness of the allocation of financial investments is first formulated. Data for commercial banks, FIA institutions and building societies allow for categorization of such investments into private sector, public sector or foreign securities. In the Jamaican context the desirability of each of these types of securities for growth creation is clear, as foreign securities do not have much impact on GDP, and public sector securities have only a limited direct impact, by virtue of being used largely to repay the huge debt that has been amassed. Private sector securities, therefore, have the greatest potential for growth creation.

In applying the counterfactual approaches, the share of total financial investments allocated to each type of security is calculated for both the

before and *after* periods. In the *before-after* approach, financial instability is shown to have an adverse impact on the allocation of such investments if the *before-after* differences for public sector and foreign securities are positive (reflective of increased shares of the total), and if the difference for private sector securities is negative (reflective of a decreased share of the total). Similarly, if the Jamaican differences for public sector and foreign securities are greater than the corresponding average differences for the control group institutions, and are smaller for private sector securities, then the *with-without* approach concludes that financial instability has an adverse impact on the allocation of financial investments.

Our results indicate that the Jamaican financial sector had mixed results in the allocation of financial investments during the period of financial instability. Commercial banks seem to exhibit improved performance due to instability, as the share of financial investments to the public sector had a negative difference (-23.32) and was much smaller than that of the average for the control group countries (4.11), while the private sector's share of financial investments was positive (17.07) and larger than that of the average for the control group countries (-3.65). However, it must be noted that this increase in the share of private sector securities is partially due to an increase in connected party investments during the period of financial instability. One aspect of the commercial banks' allocation of financial investments that was adversely affected by instability was the increased share of investments in foreign securities (with a *before-after* difference of 6.25). The allocation of financial investments by FIA Institutions was more harshly affected by financial instability. These institutions had positive and relatively large differences for the share of investments to public sector and foreign securities (11.08 and 10.30, respectively), and a significant negative difference for private sector securities (-21.39).

The Impact of Financial Instability on the Allocation of Invested Assets by Life Insurance Companies

Financial instability also had a negative impact on the allocation of invested assets by life insurance companies. These can be classified into six categories, of which investments in private sector securities are expected to be the most productive, while investments in cash and deposits,[22] policy loans and mortgages,[23] real estate and fixed assets,[24] government securities, and the category classified as 'others', which includes foreign securities and assets, are expected to have only a limited impact on economic growth.

As above, the counterfactual approaches were applied by calculating the *before* and *after* figures for the share of total invested assets allocated to

each of these categories, for Jamaica and the control group countries. Financial instability is shown to have an adverse impact on the allocation of life insurance companies' allocation of invested assets if: (i) the private sector's share of invested assets has decreased (represented in the *before-after* approach by a negative difference for Jamaica, and in the *with-without* approach by a difference for Jamaica that is smaller than the average difference of the control group countries); and (ii) any or all of the other categories' share of invested assets has increased (represented in the *before-after* approach by a positive difference for Jamaica, and in the *with-without* approach by a difference for Jamaica that is larger than the average difference of the control group countries).

Our results show that both the *before-after* and *with-without* approaches suggest that allocation of invested assets by life insurance companies was adversely affected by financial instability. The *before-after* difference for the share of invested assets to private sector securities was both negative for Jamaica (-4.18) and much smaller than that of the average for the control group countries (6.07). Also, the *before-after* differences for the shares of invested assets to 'cash and deposits', 'government securities' and 'real estate and fixed assets' for Jamaica were positive (2.49, 6.11 and 7.52, respectively) and considerably larger than the averages for the control group countries (1.20, -0.76 and 4.23, respectively). Furthermore, even though the *before-after* difference for the share of invested assets to 'policy loans and mortgages' was negative for Jamaica (-0.60), it was still larger than that of the average for the control group countries (-2.93), suggesting from the *with-without* approach that instability had also adversely affected the allocation in this respect. The only positive trend reported with regards to the life insurance companies' allocation of invested assets consequent to the crisis was the relatively large reduction in the share of invested assets to the 'others' category (-11.34), which includes foreign securities and assets. This, however, does not single-handedly reverse all the negative trends previously reported, nor does it change the conclusion that the allocation of invested assets by life insurance companies was worsened by financial instability.

The Impact of Financial Instability on the Quality of Borrowers/Investors

Financial instability is also expected to have an adverse impact on the quality of the financial institutions' borrowers and investors. This section examines this impact by using the ratio of past-due loans (PDLs) to total loans as an indicator of the quality of the loans issued. The ratio of connected party loans and investments to total loans and investments will also be used as a complementary indicator, as loans and investments to

related parties represent one of the crucial loopholes in the screening and monitoring process, leading to the selection of less than desirable borrowers/investors. The before and after averages for each ratio were calculated, however, due to the lack of data for the control group countries, only the before-after approach could be used in analyzing these indicators.25

Results indicate that financial instability has had an adverse impact on the quality of borrowers in both commercial banks and FIA Institutions. In both types of institutions there were significant increases in the past-due loans to total loans ratio consequent to the crisis (with *before-after* differences of 11.77 and 19.00, respectively). In commercial banks the increase in connected party loans to total loans was even larger (16.39), but in FIA Institutions the increase in this ratio was much smaller (3.15 - probably because it was at already very high levels before the period of instability).

The only measure of the quality of investors was the ratio of connected party investments to total investments, and the results here were mixed. Whereas commercial banks had a slight increase in this ratio due to the crisis (with a *before-after* difference of 0.85), FIA Institutions actually had a significant decrease in this ratio (-9.80), suggesting that their performance in this respect improved as a result of the crisis. It must be noted, however, that these results are somewhat tentative, as they could not be confirmed by comparison with the control group countries.

Our results show that financial instability has adversely affected the allocation of resources by the Jamaican financial sector in most of the areas studied. Commercial banks, FIA Institutions and building societies exhibited worsened performances in the allocation of credit, as did FIA Institutions and life insurance companies in the allocation of financial investments and invested assets, respectively. Financial instability caused a decline in the quality of borrowers in commercial banks and FIA Institutions, and in the quality of investors in commercial banks. Improvements were registered in the allocation of financial investments by commercial banks and the quality of investors by FIA Institutions, but these improvements were overshadowed by the adverse effects.

The Effect of Financial Instability on Monetization and the Ease of Trading

This section examines the impact of instability on the third channel through which the financial sector is expected to foster economic growth – increasing use of money as a medium of exchange, and otherwise facilitating ease of trading and specialization among economic entities. The

variables examined are M2/GDP and the value of shares traded on the stock market to GDP.

The figures derived show that M2/GDP declined as a result of the period of financial instability in Jamaica. Not only was the difference between the *before* and *after* periods negative (-2.19), but it was also significantly smaller than the average difference for the control group countries (6.03). The impact of instability on liquidity in the stock market was also negative, as there was a fairly large deterioration in the value of shares traded (-2.16). It must, however, be noted that the overall impact of these changes on the ability of the sector to facilitate easy trading and specialization in the Jamaican economy is almost negligible, as the Jamaica Stock Exchange is miniscule; in addition, it would require much larger decreases in the money supply to actually cause appreciable increased hardships in conducting transactions.

The Impact of Financial Instability on the Operational Efficiency of Financial Institutions

This section examines whether financial instability also has had adverse impacts on the operational efficiency of financial institutions. If so, this will have important implications for the ability of the financial sector to foster economic growth, since if operational inefficiency is increased, financial institutions will tend to push up interest rates and management fees to maintain their accustomed profit levels. This adversely affects the quantity and quality of the physical investments funded, as prudent borrowers and investors find it more difficult to affordably access the funds needed to enter into productive ventures.26

The measure of operational efficiency used in this study is the interest rate spread, as it is argued that wide interest rate spreads are usually reflective of high administrative costs and low competition, both of which are incentives for financial institutions to unduly increase lending rates (Ngugi, 2001). The before and after figures for the interest rate spread of commercial banks, FIA Institutions and building societies in Jamaica and the control group countries were calculated. From these figures it is evident that financial instability had a negative impact on the interest rate spreads of both FIA Institutions and building societies (with before-after differences of 7.27 and 1.14, respectively, as compared with average differences for the control group country of -1.21 and 0.33. respectively). FIA Institutions were, however, clearly the more vulnerable of the two, as evidenced by the larger increase in the spread and the greater gap between the Jamaican difference and that of the control group country. It was also concluded from both the before-after and with-without approaches that

commercial banks were able to lower their interest rate spreads consequent to the crisis. Although the decrease in the spread was small (-0.52), it does suggest that in stringent times these institutions could be forced to improve their efficiency.

The Effect of Financial Instability on Real Sector Economic Performance

It has been assumed thus far that if the effectiveness of the financial sector was impaired in critical areas by financial instability, such instability would also have a negative impact on economic performance. This section cursorily tests that assumption by applying the *before-after* and *with-without* approaches to two measures of economic performance. The *before* and *after* figures for real GDP growth and real per capita GDP growth are calculated for Jamaica and the control group countries. As expected, the adverse impact of financial instability on both these measures is evident, as the differences for both measures are negative (-1.88 and -1.84, respectively), while the average differences for the control group countries are positive (0.17 and 0.28, respectively).

V. CONCLUSIONS

The stability of the financial system is an important determinant of real sector performance, as it has been shown that the performance of financial institutions tend to be adversely impacted by financial instability. The impact of financial instability on financial sector intermediation was rigorously tested using *before-after* and *with-without* counterfactual methodologies. The results show that financial instability had adverse impacts on financial intermediation in all of the channels through which the sector is expected to foster economic growth, and ultimately was inimical to real sector economic performance.

Financial instability was first shown to have a negative impact on the mobilization and transfer of funds to the real sector, as evidenced by significant reductions in the rate of growth of savings mobilized and loans issued. However, in spite of this, a number of institutions had achieved improved performance relative to their asset size, highlighting that stringencies associated with periods of financial instability can force institutions to become more effective in the utilization of resources.

Our results indicate that financial instability adversely affected allocation of credit by commercial banks, FIA Institutions and building societies, as evidenced by decreased distribution of loans to the sectors with the largest shares of GDP and the fastest growth in production. Consequent to financial instability, FIA Institutions' and life insurance

companies' allocation of financial investments also worsened, as they replaced private sector securities with public sector securities. Financial instability was also shown to have caused a decline in quality of borrowers in commercial banks and FIA Institutions, and in quality of investors in commercial banks, evidenced by increased proportions of past due and connected party loans to total loans, and connected party investments to total investments during the period of instability. Conversely, whereas the M2/GDP ratio and value of shares traded on the stock exchange declined as a result of the crisis, these decreases were not large enough to have an appreciable effect on the ease of trading and degree of specialization in the real sector.

Finally, it was also evident that financial instability caused an increase in levels of operational inefficiency in FIA Institutions and building societies, as evidenced by their increased interest rate spreads. Interestingly, commercial banks were able to reduce their interest rate spread consequent to the crisis, suggesting that when forced, increased levels of efficiency were possible.

Importantly, this study also found that some types of financial institutions are more susceptible to worsened performances in certain areas as a result of financial instability, and so may warrant closer scrutiny by the regulators. Here it was shown that building societies had the largest rate of decline in the growth of savings mobilized, commercial banks had the largest rate of decline in the growth of real loans issued, and FIA institutions were most susceptible to worsened performance in the allocation of credit and had the largest increase in operational inefficiency.

NOTES

1 Lai (2002) presents a comprehensive review of the literature on theoretical models of financial crises.

2 Financial Institutions Services Limited (FIS) and Financial Sector Adjustment Company (FINSAC)

3 Nominal figures were deflated using the GDP deflator, and indicators were expressed as ratios or percentages.

4 Such approaches when applied to studies of IMF-programmes, have traditionally compared performance during one to two years before and after the implementation of the programme (Khan, 1990: 199-200).

5 Adapted from Kirkpatrick (1995: 28)

6 Adapted from the definition given by Khan (1990: 198)

7 The idea here is to use the observed financial sector performance of the countries that have not experienced financial instability as an estimate of what the financial sector performance of countries that had experienced financial instability would have been in the absence of such instability (adapted from Khan, 1990: 202).

8 Adapted from the definition given by Goldstein & Montiel (1986: 308)

9 DaCosta & Cueva (2000: 3), Hilaire (2001: 1) and http://countrystudies.us/belize/42.htm

10 Although the similarities between the control group countries and Jamaica are significant, and allow for effective cross-country comparisons and analyses, it must be noted that important differences do exist between the countries, which must be identified and, if possible, accounted for in the analysis of the data. The major differences include 'the types of products they specialize in, the extent of state involvement in productive activity, and the size of their outstanding debts – which determined their policy options' (Hilaire, 2001: 1). Girvan (1997: 5-7) also highlights the difference in population size between some countries, and the difference between the per capita income of the countries being studied.

11 Hilaire (2001: 6), Worrell et al (2001: 4 & 18) and Odle (1998)

12 In order to facilitate comparison across institutions and countries the data collected from these sources often had to be reclassified. The major reclassification involved placing the different types of financial institutions into groups comparable with those operating in Jamaica. The analysis of the allocation of credit also required a reclassification of the data so as to allow for a comparison of the distribution of credit by financial institutions with the sectoral share and growth of GDP. In all cases these reclassifications were justified, logical, and served only to simplify the data without obscuring any details necessary for the analyses.

13 Financial investments refer to the purchase of various types of securities, including government bonds and notes, corporate bonds and notes, and shares traded on the stock exchange (Rose, 1996).

14 This includes deposits collected by commercial banks, FIA Institutions (merchant banks, trust companies and finance houses) and building societies, as well as savings in credit unions, and premiums collected by life insurance companies.

15 The complete set of tables with all the relevant figures can be requested from the authors.

16 For example, for commercial banks the calculation was: 4.83 – (-6.13) = 10.96. The figures computed were as follows: building societies (27.43); credit unions (12.93); commercial banks (10.96); and life insurance companies (4.59).

17 Both the before-after and with-without approaches strongly suggest that the total assets in all the different types of financial institutions declined as a result of financial instability.

18 The figures computed were as follows: commercial banks (19.74), credit unions (7.47); building societies (6.51); and FIA Institutions (2.45).

19 Such as those by Barnes & Stewart (1996) and Odle (1998).

20 Although the growth of loans to the slowest sectors also declined as a result of the crisis, this was not sufficient to compensate for the adverse impact on the allocation of credit to the fastest growing sectors.

21 The counterfactual analysis on the allocation of financial investments by building societies and credit unions was not conducted due to insufficient data.

22 Short-term financial instruments are expected to have less of an impact on economic growth than longer-term instruments, because the latter are 'more closely connected to the savings and investments that are vital for the growth of the economy…' The market for the longer-term instruments contributes to economic stability by matching savings and investment, and to 'economic growth by expanding the total amount of savings and investment' (Rose & Kolari, 1995).

23 These loans and mortgages are typically made only to policyholders on the basis of their savings, and as such do not involve any intermediation.

24 Including mainly (in the 1990s) the construction of elaborate head offices and group headquarters.

25 The lack of data also precluded the analysis of the quality of borrowers and investors in building societies, credit unions and life insurance companies.

26 See Quaden (2004), Ndung'u & Ngugi (2000), Chirwa & Mlachila (2004), and Valverde, Del Paso & Fernandez (2004) for the supporting theoretical arguments.

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