

out one bank's position as that representing the entire economy. Summing up the vault cash and deposits at the Fed of the commercial bank where the city of Chicago maintains its working cash balances gives no information about the liquidity of the banking system of Chicago even if the city clearing house is maintained in the same bank.

The other IMF series, International Reserves, comes closer to the number needed to demonstrate the ability of the economy to meet an internal liquidity crisis (lender of the last resort) or the capability to expand the money supply or meet an excess of payments to foreigners over receipts from foreigners. The series is the sum of the same items that enter into Official International reserves but the aggregation is over the entire banking system. In addition, however, credit to non-residents is also included. Since all credit is denominated in dollars, only the residence makes the loan international. Much of the movement in the series then reflects the oscillation of the international operations of the banking system, instead of an upper constraint on the banking system's expansionary forces of liquid assets. Both IMF series then are inadequate representations of the monetary base.

APPENDIX B

MONETARY STATISTICS

As in most other developing countries, statistics are a luxury in Panama. The high cost comes not so much from the use of precious tax revenue as from the large amounts of human capital consumed in collecting, categorizing and publishing the data. In addition, since most data collection activity is geared toward answering questions raised by international organizations with resources to spend, the type of numbers gathered emphasize standardization across countries rather than useful economic explanations of the economy. Finally, since Panama is a small country, it suffers from the "law of small" numbers where errors in classification by reporting agents can throw off the entire series since there is neither enough labor to verify all data collected, nor enough reporting agents to ensure the "errors average out."

This is especially true in the case of the banking sector data where the collected series serve adequately to answer the questions asked by the IMF, but do not necessarily describe the economics of the monetary situation, especially after the regional financial center began to develop. Consequently, since the published series was not always complete, contained the influence of interbank dealings throughout, and at times aggregated unpublished series in an arbitrary manner, it was necessary to utilize the original balance sheets collected by the Contraloria General de la Republica and, after 1971, the Comision Bancaria. Unless otherwise stated, these balance

sheets served ~~as~~ the primary source for all monetary data. Tables 27 to 31 of this appendix contain the data series (aggregated across private and official banks) utilized in this dissertation and a brief description of how the series were aggregated. Because the disaggregations were not available, and the data less trustworthy, the data series for 1950-1959 used in Figure 1 are not reported. They were compiled from data presented in Table 34 of Compendio Estadístico 1950-59 published by Dirección de Planificación de la Presidencia in the following manner:

Net Banking Credit: Local loans plus net other assets plus local investments less capital and reserves.

Liquid International Assets: "Efectivo" (cash) plus correspondent deposits less foreign deposit liabilities plus foreign investment.

Finally, although Panama mints coins, U.S. dollar bills circulate as local currency along with U.S. coins. Consequently, no figure is available as a measure of currency in the hands of the public. Several studies¹ have attempted to estimate single year values of currency in the hands of the public, but none have tried a series. The Harberger estimate of 6-8 percent of GDP was utilized as a basis for the series. When compared to Nicaragua's currency to deposit ratio (averaging 75 percent), the values generated by 7 percent of GDP and by 75 percent of private deposits moved in a similar manner. The estimated series was modified in 1964 and 1968 to reflect banking runs, and then smoothed in 1965-67 and 1969 to reflect a gradual adjustment to the historical series. The 1971 and 1972 values were adjusted slightly to reflect abnormally high deposits in 1971, and the

¹See Organization of American States, Domestic Efforts and the Needs for External Financing for the Development of Panama, and Harberger, "Reflections on the Monetary System of Panama."

run on the government savings bank in 1972. The resulting series and the end of year currency to deposit ratios are reported in Table 30. Note the falling trend as the public takes greater advantage of the developing banking system.

TABLE 27
DOMESTIC DEPOSITS^a
(in millions).

	Private Demand Deposits	+	Savings Accounts	+	Time Deposits	+	Government Deposits	=	Total Deposits
1960	38.1		27.2		1.0		16.722		83.122
1961	41.6		29.3		2.2		11.008		84.108
1962	46.1		32.2		5.9		12.196		96.396
1963	53.0		39.2		11.8		15.834		119.834
1964	45.8		42.1		11.9		14.274		114.074
1965	50.9		48.8		20.4		16.038		136.138
1966	57.266		55.483		29.650		16.995		159.394
1967	65.046		67.187		40.834		19.038		192.105
1968	74.980		73.175		49.489		17.032		214.676
1969	83.161		77.387		56.859		19.117		236.524
1970	99.056		86.125		99.498		18.321		303.000
1971	103.842		102.013		134.156		28.601		368.612
1972	142.349		125.685		172.370		59.243		499.647
1973	151.130		135.006		217.521		69.082		572.739
1974	191.277		138.934		267.055		68.423		665.689

^aTotal domestic deposits is the sum of private demand deposits, private savings accounts, time deposits and government deposits.

TABLE 28

RESERVE PROXIES IN MILLIONS OF BALBOAS

	Vault Cash	Vault Cash + Demand Deposits ^a in Foreign Banks.		Vault Cash	Vault Cash + Demand Deposits in Foreign Banks
1960	12.5	23.4	1970 I	19.760	51.625
1961	12.6	16.725	II	19.170	46.481
1962	14.5	22.165	III	19.715	36.243
1963	18.5	24.593	IV	27.920	37.958
1964	13.6	20.069	1971 I	28.077	66.150
1965	17.2	30.610	II	27.796	68.291
1966 III	16.300	30.400	III	26.503	51.601
IV	16.347	33.970	IV	27.958	53.803
1967 I	15.235	35.666	1972 I	26.692	54.857
II	16.667	35.361	II	29.570	63.010
III	16.315	39.471	III	31.419	81.979
IV	17.198	37.045	IV	33.669	79.981
1968 I	13.744	27.775	1973 I	30.906	69.576
II	14.440	33.815	II	31.245	69.488
III	16.842	30.998	III	32.115	74.372
IV	19.713	36.961	IV	37.932	151.572
1969 I	18.734	33.121	1974 I	32.089	104.407
II	18.687	37.844	II	29.844	84.860
III	18.303	52.333	III	33.144	115.164
IV	20.851	53.514	IV	36.910	118.026

^aFrom 1973-II through 1974-IV, contains a correction for wholesale banking's impact on demand deposits in foreign banks, as three banks holding large deposits in foreign banks solely for wholesale banking purposes were eliminated from the consolidated account. The three began operations in 1973 and accounted for at least 50 percent and sometimes for more than 75 percent of the consolidated systems deposits in foreign banks.

TABLE 29

BANK CREDIT MEASURES

(in millions)

	Bank Credit ^a	Adjusted Bank Credit ^b	Net Local Bank Credit ^c
1960	97.909	85.209	70.521
1961	106.416	93.916	72.508
1962	121.938	107.438	80.996
1963	143.217	127.017	101.334
1964	163.811	145.911	101.074
1965	183.923	165.023	118.938
1966	212.323	191.826	143.649
1967	255.485	234.908	175.124
1968	282.142	260.479	192.889
1969	339.711	310.119	216.459
1970	451.866	417.603	274.347
1971	592.052	526.843	340.622
1972	797.746	722.712	465.705
1973	1043.802	914.001	524.424
1974	1435.852	1278.565	628.464

^a Bank credit is the sum of net other local assets, local loans, and local "investments" held by the banking sector.

^b Adjusted bank credit nets out the capital and reserves accounts from bank credit.

^c Net local bank credit removes the contribution of net endogenous foreign liabilities from adjusted bank credit.

TABLE 30

CURRENCY AND ENDOGENOUS FOREIGN LIABILITY SERIES

(in millions)

	Estimated Currency Held by the Public ^a	Currency to Demand Deposit Ratio	Net Endogenous For- eign Liabilities ^b
1960	29.106	.764	-9.9
1961	32.459	.780	-1.1
1962	35.336	.766	2.3
1963	39.165	.739	4.8
1964	42.056	.918	33.1
1965	40.720	.800	32.0
1966	42.949	.750	33.8
1967	48.784	.750	39.5
1968	60.298	.804	45.0
1969	62.371	.750	68.4
1970	73.206	.739	116.2
1971	75.804	.730	156.4
1972	83.849	.589	220.4
1973	103.075	.682	332.1
1974	121.814	.637	587.4

^a Estimated. See above for methodology.

^b Calculated as deposits of non-residents less credit to foreigners less net other foreign assets less non-reserve deposits in foreign banks.

TABLE 31

REAL MONEY BALANCES

(in millions^a)

1960		64.221	1970	I	146.379
1961		68.373		II	147.956
1962		74.600		III	149.151
1963		85.250		IV	156.673
1964		89.158	1971	I	165.140
1965		91.334		II	167.791
1966	III	102.533		III	168.250
	IV	109.379		IV	173.858
1967	I	111.466	1972	I	180.989
	II	115.361		II	181.074
	III	117.371		III	182.918
	IV	121.805		IV	202.633
1968	I	126.782	1973	I	219.496
	II	126.560		II	218.603
	III	128.476		III	214.686
	IV	134.932		IV	212.699
1969	I	136.492	1974	I	207.893
	II	135.459		II	198.249
	III	137.250		III	195.692
	IV	141.494		IV	204.206

^aReal money balances are calculated as the sum of private non-bank demand and savings deposits (average over the period) divided by the consumer price index (average over the period). The sum of demand and savings deposits is used to avoid the strong seasonal shifts between the two during the year.

APPENDIX C

BALANCE OF PAYMENTS STATISTICS

The very openness of Panama's economy which allows her to be highly integrated into world goods and capital markets creates a statistical nightmare for anyone attempting to measure the capital accounts. In addition, there are the conceptual problems created by standardizing Panama's accounts with international agency requests. Such statistics let Panama be compared with other countries but do little for economic analysis (recording exports of oil under services, instead of goods, simply because they are sold to Panamanians who sell them to boats and planes instead of direct sales by refineries is one good example). The trade accounts used in Chapter V thus have replaced recorded fuel and lubricant imports by estimates of domestic consumption valued CIF at the refinery, and insurance and freight have been adjusted to remove the component attributable to fuels and lubricants. Exports are thus understated by domestic value added at the refinery (mostly wages) which has been \$1-3 million a year. Factor service payments have been aggregated into their respective capital account figures so that increases in interest payments to foreigners and from foreigners resulting from the internationalization of the banking sector do not distort the domestic accounts.

Additional capital account problems arise due to the Colon Free Zone. As the local banking center expanded, merchants in the Free Zone financed their warehouse inventories in Panama City instead of New York. A survey

of banks revealed an unequal treatment of these loans with some banks classifying them as foreign, some as local loans. This complicates the normal developing country problem of unrecorded capital transactions showing up as errors and omissions. Again, balance of trade and capital account statistics must be taken with a grain of salt, since changes in end of period levels of reported outstanding foreign debt were used as indicators of the capital flows reported in Chapter V. Government accounts then are reasonably accurate, banking sector data less so, and private sector data may be off by as much as 100 percent in either direction. Nevertheless, they are still useful as indicators of the true flows, though shaky, indeed, for very exacting measurements. Those utilized in this dissertation were derived from the figures reported in Contrólaria General's Foreign Trade and Balance of Payments bulletins.

APPENDIX D

PRICE STATISTICS

Price statistics utilized were derived from the values reported in Controleria General's Price bulletin. In addition to the problems mentioned above in Chapter IV, the Panamanian wholesale price index suffers from some structural problems. The small size of the local market causes numerous items to be imported directly by one or two firms who serve the whole market, making a wholesale market unnecessary. Thus only one refinery imports all the crude oil, and the wholesale market is in gasoline and diesel oil. Some imported items never enter the index except to the extent they form part of the final good's price, while others enter under the domestic industrial sector after several stages of processing. One alteration of official data then was to move fuels from the domestic to the imported sector and to remove the impact of the fuel tax imposed in 1972.

To make the individual comparisons of the items of the wholesale price index, items in Panama's wholesale price index were re-grouped so as to be comparable with the U.S. classification. The weighting scheme was based on the share of the items in Panama's wholesale index, with the weights of each sub-index constructed summing up to one. The individual items are included on each chart.

Dornbusch, Rudiger. "Devaluation, Money and Nontraded Goods." American Economic Review 63 (December 1973):871-80.

_____. "Real and Monetary Aspects of the Effects of Exchange Rate Changes." National Monetary Policies and the International Financial System. Edited by Robert Z. Aliber. Chicago: The University of Chicago Press, 1974.

Frenkel, J. A. and Johnson, H. G. (eds.). Monetary Approach to the Balance of Payments. London: Allen & Unwin, 1975.

Friedman, Milton. "A Monetary and Fiscal Framework for Economic Stability." Readings in Monetary Theory. Edited by Friedrich A. Lutz and Lloyd W. Mints. Homewood: Richard D. Irwin, Inc., 1951.

Friedman, Milton and Schwartz, Anna J. A Monetary History of the United States. Princeton: Princeton University Press, 1963.

Genberg, Hans. "Aspects of the Monetary Approach to Balance of Payments Theory: An Empirical Study of Sweden." Unpublished Ph.D. dissertation, The University of Chicago, March 1974.

Guitian, Manuel. "Devaluation Monetary Policy and the Balance of Payments." Unpublished Ph.D. dissertation, The University of Chicago, June 1973.

Harberger, Arnold C. "Reflections on the Monetary System of Panama." Chicago Essays in Economic Development. Edited by David Wall. Chicago: University of Chicago Press, 1972.

Hart, Albert G. "The 'Chicago Plan' of Banking Reform." Readings in Monetary Theory. Edited by Friedrich A. Lutz and Lloyd W. Mints. Homewood: Richard D. Irwin, Inc., 1951.

Hewson, John and Sakakibara, Eisuke. "The Eurodollar Multiplier: A Portfolio Approach." International Monetary Fund Staff Papers 21 (July 1974): 307-28.

Ingram, James C. "State and Regional Payments Mechanisms." Quarterly Journal of Economics 73 (November 1959):619-32.

_____. Regional Payments Mechanisms: The Case of Puerto Rico. Chapel Hill: The University of North Carolina Press, 1962.

International Monetary Fund. International Financial Statistics. Washington, D.C.: International Monetary Fund, 1960-1975; 1973 Supplement.

Johnson, Harry G. "The Problems of Stabilization Policy in an Integrated World Economy." Demand Management Symposium 1971. Edited by Herbert Giersch. Kiel, Germany: J. C. B. Mohr Tubingen, 1972.

_____. "World Inflation." Proceedings of a Panel Discussion. Stabilization Policies in Interdependent Economies. Edited by Emil Claassen and Pascal Salin. Amsterdam: North-Holland, 1972.

- Johnson, Harry G. "Inflation and the Monetarist Controversy." Professor Dr. F. DeVries Lectures. Amsterdam: North-Holland, 1972.
- _____. Further Essays in Monetary Economics. Cambridge: Harvard University Press, 1973.
- _____. "Secular Inflation and the International Monetary System." Journal of Money, Credit and Banking 5 (February 1973):509-19.
- Katz, Samuel I. "'Imported Inflation' and the Balance of Payments." The Bulletin, Nos. 91-92 (October 1973).
- May, Josef. "An Adjustment Mechanism Based on Expectations in a Macro Model." Unpublished Ph.D. dissertation, The University of Chicago, 1968.
- Mayer, Martin. The Bankers. New York: Weybright and Talley, 1974.
- Meulendyke, Ann-Marie. "Causes and Consequences of the Eurodollar Expansion." Unpublished Ph.D. dissertation, The University of Chicago, March 1975.
- Ministerio de Planificacion y Política Economica, República de Panama. Informe Económico 1971. Panama: Ministerio de Planificacion, 1971.
- _____. Informe Económico 1972. Panama: Ministerio de Planificacion, 1972.
- _____. Informe Económico 1974. Panama: Ministerio de Planificacion, 1974.
- Mundell, Robert A. International Economics. New York: The Macmillan Co., 1968.
- _____. Monetary Theory. Pacific Palisades: Goodyear Publishing Co., Inc., 1971.
- Nettles, James K. "Análisis por una Legislación Bancaria Panameña." Estudios Sobre el Sistema Monetario y Bancario de Panama. Edited by Nicolas Ardito Barletta, Jr. Panama: Departamento de Planificacion, 1970.
- "New Treasure Flow in Panama." New York Times, December 28, 1972, p. 75.
- Newlyn, W. T. "The Colonial Empire." Banking in the British Commonwealth. Edited by R. S. Sayers. London: Clarendon Press, 1952.
- _____. Money in an African Context. Nairobi: Oxford University Press, 1967.
- Nobay, A. R. "International Aspects of the Economics of Inflation." Unpublished manuscript, University of Southampton, July 1974.
- Organizacion de los Estados Americanos. Situación, Principales Problemas y Perspectivas de Desarrollo Económico y Social de Panama. Washington: Organizacion de los Estados Americanos, 1974.

- Organization of American States. Domestic Efforts and the Needs for External Financing for the Development of Panama. Washington, D.C.: Organization of American States, 1966.
- Pierce, J. L. "Commercial Bank Liquidity." Money Supply, Money Demand, and Macroeconomic Models. Edited by John T. Boorman and Thomas M. Havrilesky. Boston: Allyn and Bacon, Inc., 1972. Pp. 112-24.
- Rapoport, Alan. "The Protective Policies of Panama: An Empirical Study." Unpublished Ph.D. dissertation, The University of Chicago, 1975. ✓
- Robertson, Dennis H. Money. New York: Harcourt, Brace, and Co., 1929.
- Salant, Walter S. Financial Intermediation as an Explanation of Enduring "Deficits" in the Balance of Payments. Washington, D.C.: The Brookings Institution, 1972.
- Sjaastad, Larry A. "The Inflationary Process in Panama." Unpublished manuscript, Panama, August 1973.
- _____. "Prices and Wages in Panama." Unpublished manuscript, Panama, September 1973.
- _____. "On the Monetary Theory of the Balance of Payments: An Extension." Unpublished manuscript, University of Chicago, 1975.
- Solomon, Ezra. The Anxious Economy. Stanford: Stanford Alumni Association, 1975.
- Triffin, Robert. "Politica Crediticia y Estructura Bancaria en el Desarrollo Economico de Panama." Estudios Sobre el Sistema Monetario y Bancario de Panama. Edited by Nicolas Ardito Barletta, Jr. Panama: Departamento de Planificacion, 1970.
- U.S. Bureau of Labor Statistics. Handbook of Methods. Bulletin No. 1711. Washington, D.C.: U.S. Department of Labor, 1971. Pp. 75-112.
- _____. Monthly Labor Review Reader. Bulletin No. 1868. Washington, D.C.: U.S. Department of Labor, 1975. Pp. 169-234.
- _____. Handbook of Labor Statistics. Bulletin No. 1666. Washington, D.C.: U.S. Department of Labor, 1970.
- _____. Handbook of Labor Statistics. Bulletin No. 1600. Washington, D.C.: U.S. Department of Labor, 1968.
- _____. Handbook of Labor Statistics. Bulletin No. 1735. Washington, D.C.: U.S. Department of Labor, 1972.
- _____. Monthly Labor Review. Washington, D.C.: U.S. Department of Labor, January-June 1974, also 1960-1975.
- Woodworth, G. W. "Commercial Bank Liquidity Management." Readings in Money, National Income and Stabilization Policy. Homewood: R. D. Irwin, 1965.