Monetary Policy and Currency Boards

Asia Pacific Countries Examples Vol.1

Steve Hanke
Bilal Kargı
Editors

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Steve Hanke
The Johns Hopkins University, USA
Bilal Kargı
Ankara Yıldırım Beyazıt University, Turkey

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Monetary Policy and Currency Boards: Asia Pacific Countries Examples, Vol.1

Editors: ***Steve Hanke*** [a] ***& Bilal Kargı*** [b]

[a] The Johns Hopkins University, USA.

[b] Ankara Yıldırım Beyazıt University, Turkey.

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Foreword

It is possible to present a brief summary of the subjects that the chapters in this book focus on.

Ch 1. This essay examines the Malayan Currency Board from its formation in 1938 to its dissolution in 1967. It analyzes the orthodoxy of the board using high-frequency data, such as monthly statistics of currency notes in circulation. Accompanying the essay is a spreadsheet workbook which presents high-frequency data of the board in digital format for the first time, as well as balance sheets and other financial statements.

Ch 2. Sri Lanka had a currency board system from 1884 to 1950 which maintained a relative stability in prices and the exchange rate. However, the currency board was replaced by a central bank in 1950 with the objective of providing a more dynamic service to the newly independent economy. With the failure of the central bank in maintaining the stability of the value of the rupee domestically as well as externally, a growing demand has arisen for the return to a currency board system in the country. This essay, intended to educate the general public of the implications involved, covers the origin of the currency board system in Sri Lanka, its performance during the colonial period, why independent Sri Lanka chose to establish a central

bank, while Singapore decided to continue with a Currency Board, the case for Currency Boards as presented by its modern-day crusader Steve Hanke, and how the failure of the Monetary Board of the Central Bank will pave way for the establishment of a currency board in Sri Lanka.

Ch 3. We provide a spreadsheet data series and legislative history of the Burma Currency Board (BCB) from 1948 to 1952. The chaper assesses the level of orthodoxy exhibited by the board through analysis of legislation and statistics from quarterly bulletins. We also do a comparative analysis of economic health during and after the currency board era through use of economic markers. This paper makes various balance sheet data available in machine-readable form in a companion spreadsheet workbook.

Ch 4. This chapter provides a historical summary, legislative history, and the first spreadsheet data series of the Tonga Board of Commissioners of Currency (1935-1989) and uses statistical tests to examine to what extent it operated as an orthodox currency board.

Ch 5. The Philippine monetary system and data from 1903-1948 are examined, using general observations and statistical tests to determine to what extent the system operated as a currency board. This chapter makes detailed annual balance sheets of the monetary system available in machine-readable form for the first time, in a companion Excel workbook.

Ch 6. This chapter explores New Zealand's early monetary history, examining its colonization and the events leading up to the establishment of the Colonial Bank of Issue, an early currency board. It describes the operations of the bank during its six-year stint as the colony's sole note issuer. An accompanying spreadsheet workbook contains the statistics of the Colonial Bank of Issue.

Ch 7. This chapter describes the history of Fiji's currency board, which existed from 1914 to 1973, and analyzes the extent of its orthodoxy through statistical analysis of its annual financial statements. An accompanying spreadsheet workbook contains all related data and analysis.

Ch 8. Thailand (the Kingdom of Siam) started issuing currency notes in 1902 through a division of the ministry of finance, continuing until 1942, when the country established a

central bank. We discuss Thailand's financial system during the period, examining the legislation and relevant events in the country that shaped it during those years. We also gather data and test whether the system operated like a currency board in any part of the period.

S. Hanke & B. Kargı
Baltimore & Istanbul
November 15, 2022

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Zixiang ***Ma*** *&* *Nicole* ***Saade***

1 The Malayan currency board, 1938-1967

Josephine ***George***

Introduction

British colonization of the Malay Peninsula dates from 1786, when the British East India Company established a settlement at Penang. The British established a settlement at Singapore in 1819. By the treaty of London in 1824, the British and Dutch established spheres of influence corresponding largely to present-day Malaysia and Indonesia. The opening of the Suez Canal in 1869 fueled the tin trade and boosted the Malayan economy. In the late 19th century the British established protectorates over the native states of the peninsula to supplement their direct control of the Straits Settlements colony, whose key component was Singapore. The Straits Settlements had its own currency, the Straits dollar, which was also used in the Malay states, because they had no distinct local currency or currency unit.

After Japanese occupation during the Second World War, Britain joined all of the Malayan states into a single unified state called the Malayan Union on 1 April 1946, which under a revised constitution became the Federation of Malaya on 1 February 1948. Under the Malayan Union and Federation and

even for some years before, the local governments operated a currency board system, linking all of the Federated States with a single currency, the Malayan dollar. In the 1960s, tensions bubbled between Malays and non-Malays within the Federation, eventually leading to the emergence of Malaysia and Singapore as separate, independent nations and the end of the currency board system. The Malayan Currency Board has been the subject of a number of studies (e.g., King, 1957; Drake, 1966, 1969; Lee, 1974). The novelty of this essay is its emphasis on the data of the board's operation, especially its high-frequency data, which are digitized and analyzed systematically for the first time here.

Background/History

The Straits Settlements were British territories on the Malayan Peninsula consisting of four individual settlements: Malacca, Dinding, Penang, and Singapore. The neighboring Federated Malay States and Unfederated Malay States were also under British rule. During the Second World War, Japanese forces invaded and occupied the Malayan peninsula. They also occupied the British protectorates on Borneo: Brunei, British North Borneo, and Sarawak. The occupation lasted from 1942 to 1945. After the war ended and British rule resumed, the Straits Settlements was dissolved in 1946. The Malayan Union and the Federation of Malaya, which replaced the Malayan Union in 1948, gathered all British territories on the Malayan Peninsula under a single government. Within the Federation, the Malayan states were protectorates of the British Crown, until achieving independence within the Commonwealth of Nations in 1957. Britain granted Singapore full internal self-government in 1959. In 1963 Singapore, the Federation of Malaya, North Borneo, and Sarawak united to form the independent country of Malaysia. Political disagreements led Singapore to separate from Malaysia and gain independence in 1965. Brunei was a separate British protectorate all during these events and remained so until gaining independence in 1984.

Early in their history, the Straits Settlements in practice used as their currency Spanish silver pesos, also known as silver

dollars or pieces of eight. They began coining their own equivalent currency, known as the Straits Settlements dollar, in 1871 (Chalmers, 1893: 382-7). The Straits Settlements established a currency board in 1899. By 1906 the Straits Settlements dollar had switched from a silver basis, like China, to a gold basis, like the Netherlands Indies (Indonesia), India, and the United Kingdom. The Malay States used Straits Settlements currency but shared none of the profit from the issuance. Beginning in 1938, the Malay States joined together with the Straits Settlements to form the "All Malaya" currency board, eventually bringing in the Borneo territories in 1952. The Currency Ordinance of 1938 officially gave the Board authority as the sole currency issuer on the Malayan Peninsula, and gave all member governments shares in the profits. Above all else, the colony required stable exchange rates with London and therefore the currency board system fixed the Malayan dollar to the pound sterling at 2 shillings 4 pence (or Malayan $50 = £7, the same as the old Straits Settlements dollar) and backed it with reserves of at least 100 percent. The official name of the board was initially the Board of Commissioners of Currency, Malaya, but it was popularly known as the Malayan Currency Board or Malayan Currency Commission.

Currency ordinances of 1950 and 1960 updated the laws of the Currency Ordinance as the political economy of the region changed. From 1953 to 1967, the Malaya and British Borneo dollar was issued by the Board of Commissioners of Currency, Malaya and British Borneo. The Currency Ordinance of 1960 was the last currency ordinance and included a provision for the potential break-up of the Board. After trying to maintain a common currency and market, Singapore, Malaysia, and Brunei each issued their own currencies beginning on 12 June 1967 (BCCMBB Annual Report, 1967: 3).

In 1959 Malaya established the Central Bank of Malaysia (in Malay, Bank Negara Tanah Melayu; from 1963, Bank Negara Malaysia). Until the currency board split of 1967, however, it did not take an active role in monetary policy, so as to preserve the monetary union with Singapore, and did not issue currency. Hence it seems accurate to continue to focus on the currency board in this discussion.

After 1967, Malaysia let Bank Negara Malaysia become a full-fledged central bank, and it took over currency issuance. Singapore continued to operate a currency board system for a time, before replacing the system with central banking in 1971 when it established the Monetary Authority of Singapore. Brunei also founded its own currency board in 1967 by the Currency Enactment of 1967 (Skully, 1984: 7). Brunei continues to have a quasi currency board system, in which external assets need not be equal to 100 percent of the monetary base. The Brunei dollar is equal to the Singapore dollar, and Brunei and Singapore have a currency interchange agreement under which their monetary authorities accept each other's currencies at par (Currency Interchangeability Agreement, Brunei: 2ai).

Definition of an orthodox currency board

In the analysis of the orthodoxy of the Malayan Currency Board, it is useful to first define what characterizes an orthodox currency board. For the purpose of this paper, we will use Hanke & Schuler's (1994: 3) definition of an orthodox currency board: "A currency board is a monetary institution that issues notes and coins (and, in some cases, deposits) fully backed by a foreign 'reserve' currency and fully convertible into the reserve currency at a fixed rate and on demand." In some cases, the reserve currency might be a commodity such as gold or silver.

An orthodox currency board holds low-risk, interest-earning securities and other assets payable in the reserve currency as reserves. These reserves equal or slightly exceed 100 percent of the notes or coins in circulation. An orthodox currency board earns profit from the difference between the return on the securities in the reserve currency, and any expenditures needed to maintain the notes and coins in circulation. Any surpluses are appropriated to the governments in the currency board (termed in the Malayan case the "Participating Governments") to maintain reserves at the level laid out by the Currency Ordinance.

Behind all the legislation is a basic idea that the purpose of a currency is to serve as a medium of exchange and store of

value, nothing more (King, 1957: 28). To meet the requirements of trade, the currency must have at least 100 percent backing and a high proportion of liquid assets in the reserves to maintain unquestioned credibility. An orthodox currency board has no discretionary power over the quantity of notes, coins, and deposits that it offers. Supply and demand in the market determine the quantity of notes and coins issued by the currency board, therefore also determining the overall money supply in the system (Hanke & Schuler, 1994: 3). Within the currency board system, commercial banks and other financial institutions may exist. The currency ordinances and laws lay out particular rules of behavior for those institutions concerning exchange rates, convertibility, and finance. One notable distinction between a currency board and a central bank is that the currency board cannot and will not lend to any commercial bank or financial institution within the system.

"A sound currency is one that is stable, credible, and fully convertible. Stability means that current annual inflation is relatively low, usually in single digits. Credibility means that the issuer creates confidence that it will keep future inflation low. Full convertibility means that the currency can buy domestic and foreign goods and services, including buying foreign currencies at market rates without restriction" (Hanke & Schuler, 1994: 1). The Malayan Currency Board issued a sound currency by that definition.

The Malayan currency board and the currency ordinance of 1938

The Currency Ordinance (No. 23 of 1938 in Singapore) accepted the report of Sir Basil Blackett (1934), which recommended participation by the Malaya States, both Federated and Unfederated, in the Currency Ordinance. Sir Basil Blackett was a British civil servant and an expert in international finance. He was appointed by the Malay States to make suggestions on how the region could benefit from the profits of a common currency. A key point of his report was that if all the Malay states were to participate, it was necessary that identical legislation be passed in each state (King, 1957:

20). The Malay States joined the currency board to receive seignorage from Straits Settlements notes circulating in Malaya (Krus & Schuler 2014: 222). After previously enjoying the convenience of no cost, effort, or responsibility regarding the currency, Malaya now agreed to participate in all three burdens for a share in the profit. The Currency Ordinance went into effect on October 21, 1938, announced in the Straits Settlements Government Gazette as Notification No. 2999, and officially established the currency notes as legal tender in the Malaya States. It was enacted "to constitute a Currency Commission to provide for and control the supply of currency to the territories administered by the Governments participating in this Agreement" (Straits Settlements Currency Ordinance, 1938).

The Malayan Currency Board was a pure foreign-exchange currency board. By the 1930s it had become standard practice in British colonies to replace older currency board legislation, requiring boards to hold some assets in gold or silver (in practice, gold or silver coin) with financial assets denominated in sterling. Unlike many banknotes, the Malayan currency notes made no promise to pay, but merely contained a legal tender statement. The notes did not represent some specific commodity, say silver or gold (King, 1957: 38). The coins and notes circulated by the Currency Board did have an exchange value, which was fixed rate at 2 pence 4 shillings sterling on demand at any office established in accordance with the Currency Board laws. The ordinances of 1938 and 1951 specified that the Currency Fund providing backing for notes and coins was to be invested in British or British Empire securities other than those of the participating governments. The British Secretary of State for the Colonies was however granted discretion to allow investment in other securities, which could have included local securities but in practice never did. The currency commissioners were permitted to charge, from any person obtaining currency notes or sterling, a commission of three-sixteenths of a penny in respect of every dollar issued (about 0.67 percent). This was later decreased to one-eighth of a penny (about 0.44 percent) for the purchase or sale of sterling respectively (Drake, 1966: 5).

The Currency Board established three accounts relating to the new currency notes, which were first issued in 1940. Those accounts were the Income Account, the Currency Fund, and the Currency Surplus Fund.

The Income Account included all income receipts arising from interest and dividends on investments, interest on deposits, discounts on treasury bills, profit on telegraphic transfers (T.T.) on London or commissions in connection with the issue or redemption of currency notes or coins. All expenditures for the administration of the Currency Board were also recorded in the income account, such as the cost of printing notes, coinage, salaries, freight, insurance premia, Crown Agents' commissions, cost of police guard, cost of audit, etc. These costs were subtracted from the gross income in order to find the net income to be divided between the Currency Fund and the Currency Surplus Fund (King, 1957: 43). In some years, income was greater than expenses, so an amount equal to one per cent of the value of the Currency Fund was appropriated from the Income Account to the Currency Fund, also called the capital account. If on the last day in any financial year, there was a surplus in the Income Account after appropriations were made, the surplus was to be transferred to the Currency Surplus Fund for distribution to the participating governments (Lee, 1986: 17).

The Currency Fund Proper, also sometimes called the Capital Account, was solely managed by the Currency Commissioners and held in London by the Crown Agents or by the Commissioners at their offices for meeting the redemption of currency (Currency Enactment, 1939; FMS Government Gazette, 1939: 560). The following two items were paid into the Currency Fund: Sterling received in exchange for currency notes or coin, and the proceeds of any transactions relating to the reminting of coin held by the Fund or the sale of any coin held for the account of the Fund less the expense involved (King, 1957: 48). The Currency Fund was composed of two portions: The Liquid Portion and the Investment Portion. The Liquid Portion, initially called the Coin Portion, was mostly held by the Crown Agents as deposits at the Bank of England and other banks, or as United Kingdom Treasury bills, short-

term loans, and "money at call" to the London money market. It was created to meet "reasonable" demands for sterling in exchange for currency. This was roughly 10 percent of the Fund (Drake, 1966: 20). The Investment Portion, making up the remaining 90 percent of the Fund, included invested securities, of which roughly 70 percent were United Kingdom government securities. Investments were made in the name of the Crown Agents or appointed trustees on behalf of the Commissioners. As the Currency Board issued currency notes, these notes are listed as a liability of the Currency Fund, in addition to nickel, cupro-nickel, and bronze coins in circulation .

The Currency Fund differed from its predecessor, the Currency Guarantee Fund (established in the Straits Settlements Currency Ordinance of 1923), which held current coin and sterling received in exchange for currency notes in the Straits Settlements. The Currency Guarantee Fund had also contained both an investment and a liquid portion, but only required a minimum backing of 40 percent for notes in circulation, whereas the Ordinance of 1938 backed notes 100 percent. The 1923 ordinance had allowed the investment portion to be invested in both British and Indian securities, whereas the updated ordinance allowed only investments in the United Kingdom or sterling securities. The Currency Guarantee Fund had been the only fund established by the Currency Ordinance of 1923, and therefore was also tasked with handling currency income and expenditure for the upkeep and maintenance of notes in circulation. In the Currency Ordinance of 1938, the three accounts better suited the operations of the Currency Board and clearly distinguished responsibilities.

The Currency Fund was valued, according to the Currency Agreement, at its "current realizable value." The investment portion was valued at the current market price of the securities at the time of valuation, and the silver coin held on account was valued at the current market value of silver. The value of the sterling assets was converted into Malayan dollars at the fixed rate of 2 shillings 4 pence per dollar.

The Currency Surplus Fund, also called the All-Malaya Fund, was established with the sole purpose to distribute

profits to the participating governments, and to be paid any surplus from the Currency Fund Income Account arising after the appropriations have been made to Participating Governments. The profits were a byproduct, not the object, of the currency board's operations (Drake, 1969: 32).

The most urgent problem was the distribution of profits, which was solved with a formula suggested by the Blackett Report that took into account the quantity of currency in circulation in each political area, assuming a constant velocity of money (King, 1957: 21). The 1938 ordinance distributed the profits and liabilities among the Participating Governments as follows:

- Straits Settlements (Singapore, Penang, and Malacca): 37 percent.
- Federated Malay States (Perak, Selangor, Negri Sembilan, and Pahang): 37 percent.
- Unfederated Malay States (Johore, Kedah, Kelantan, Trengganu, Perlis, and Brunei): 26 percent.

The structure of these three accounts remained the same in the Currency Ordinances of 1950 and 1960, continuing until the dissolution of the Currency Board in 1967 (Lee, 1986: 16-18).

The Board of Commissioners of Currency, Malaya was made up of five members who were considered public servants for the purposes of the Penal Code. The Financial Secretary of the Straits Settlements, who had been the chairman of its local currency board, was retained as chairman of the Malayan board. Although the Malayan Currency Board included representatives from the Straits Settlements, Federated Malaya States, and Unfederated Malay States, the head office was located in Singapore, which signaled Singapore as the "political and economic centre" (Lee, 1986: 18). (There were also offices in Penang, Kuala Lumpur, and later, when the board expanded to Borneo, Kuching and Jesselton [now Kota Kinabalu].) Singapore was the leading port for British trade at the time and also an information center for trade development. The port was known as the "Crossroads of the East" for its key location in international trade. Because of the amount of trade that passed through Singapore, foreign exchange needed to be supplied at

a reliable and consistent rate. The Currency Board had the sole responsibility for issuing currency among the member states, and solved the problem of each state setting up independent monetary systems. By pegging the dollar to the sterling with at least 100 percent reserves, the Currency Board created credibility among foreign and domestic investors by ensuring the value of their notes.

Foreign investors were attracted to Malaya for the tin reserves and rubber industry. When the canning industry in the United States expanded in the mid-19th century, demand for tin increased (Uqbah, 2014), and continued into the 20th century. Malaya's trade was therefore vulnerable to fluctuations in world commodity prices. While industrial production would to some extent shield Malaya from the volatile commodity price market, the region was organized for agriculture and specialized products (Drake, 1969: 5).

Due to the operation of the Currency Board, foreign investors did not fear inflation due to over-issue of currency, because the Currency Board had no discretionary power to expand the currency issue. The internal credit position was directly related to the external balance of payments position, thus eradicating the possibility for a balance of payments crisis (Lee, 1986: 33). In other words, the perfect interchangeability of the Malayan dollar into sterling and the close relationship through the overseas banks with the London money market meant that the Malayan currency system was virtually part of the British currency system (Drake, 1969). The currency board was also protected from political pressure because of its carefully structured laws and simple operation. Within the financial system, foreign and domestic banks existed along with the Currency Board. The purpose of the foreign banks was to facilitate trade in rubber and tin. Many of these banks closed during the Japanese occupation during the Second World War (discussed below). After the war had started in Europe but before it had reached Malaya, the Currency Board prohibited the export of foreign and local currency alike without permission, to reduce pressure on the balance of payments (FMS Government Gazette, 1940: 735). This measure was similar to those in other parts of the British Empire at the time.

Malaya British Borneo currency agreement 1950

The 1950 Currency Agreement contained little that was not already included in the 1938 Agreement. The main new feature was the extension of the geographical coverage of the Agreement to include British North Borneo and Sarawak. With the extension of coverage, the leadership of the Board of Commissioners added a seat appointed by the Governors of British North Borneo and Sarawak and the British Resident, Brunei (King, 1957: 42). The 1950 Agreement also devised a new formula to distribute the profit between Singapore and the Federation of Malaya on the basis of "currency per head of population x [times] number of population" (Singapore, Ordinance No. 42 of 1951, Clause 8 (2)):

- Federation of Malaya: 65 percent
- Singapore: 29 percent

Sarawak, Brunei, North Borneo: 6 percent

New currency notes featuring an updated design to reflect the Board's new name were first issued in 1954 (Lee, 1986: 20).

During the Japanese occupation from 1942-1945, the Currency Board had ceased to operate in Malaya. It continued to hold assets in London, beyond the reach of the Japanese. It redeemed Malayan currency for sterling in London, but only to carefully scrutinized parties. The Malayan population continued to hold Currency Board notes because it had confidence in them. Malaya experienced inflation because the Japanese occupation authorities issued their own notes, which eventually became almost worthless. At the same time, the Malaya currency note issue increased by almost $200 million as a result of transactions enacted by the Crown Agents on behalf of the Commissioners of Currency. These transactions consisted of the redemption of Malayan currency presented for encashment by evacuees from Malaya, and the issue of Malayan currency to the War Office for use in their operations against the Japanese. All issues of Currency to War Office were at the rate of 2 shillings 4 pence per dollar, and the sterling received was paid into the Malayan Currency Fund held by the Crown Agents (Annual Report, 1941-1946: notes i-iii).

Pre-invasion notes of the amount $221,974,005.30 remained in circulation after the occupation, and were gradually destroyed and withdrawn beginning in September 1945, when Japanese occupation ended. While the pre-invasion notes were no longer considered "money" they remained liabilities of the Currency Fund (King, 1957: 43). It remained possible afterwards for noteholders to exchange old notes for new ones at the offices of the Currency Commissioners. A new item, the reserve to cover redemption of pre-invasion notes, was created to set aside unspecified assets for the purposes of redemption. Simultaneously, new issues post-liberation were added to the circulating notes. During the Japanese occupation, the Currency Board was not considered to have authority locally and therefore could not operate as an orthodox currency board. After about half a year of postwar rule by British military authorities, civilian rule returned in early 1946. The Currency Board officially resumed operations on 1 April 1946 (Malayan Union, Ordinance No. 5 of 1946; Singapore, Ordinance No. 4 of 1946; both cited in Board of Commissioners of Currency, Malaya, annual report 1948: 1; see also Krus & Schuler, 2014: 220). Conversion into sterling resumed at the prewar exchange rate. The value of notes in circulation as at 31 December 1946 consisted of issues made prior to the occupation and not then withdrawn and issues made subsequently (Annual Report, 1941-1946: 5, note iii) .

The Currency Board again declared that pre-invasion notes to the value of $238,804,963.95 would cease to be legal tender with effect from August 1948 and September 1949 (depending on the particulars of the notes). The amount was gradually withdrawn by the Currency Commissioners and reported monthly in the government gazettes. This demonetization was not only in response to the effects of the war, but also to liquidate the Currency Surplus Fund ahead of the new Currency Agreement in 1950 that would include Sarawak and North Borneo. Before the war, both had had locally issued notes, but Malayan currency had been introduced into both on liberation from Japanese occupation. It therefore made sense to include Sarawak and North Borneo in the new agreement because the Malayan dollar had already met Sarawak and

Borneo's increased demand for notes and coins (Krus & Schuler, 2014: 203), and was already in circulation there (Lee, 1986: 20). It was then realized that the paper currency note was and would remain the main circulating medium, so the Commissioners were able to invest a larger portion of the Currency Fund. As of 1952, the Currency Fund began investment in securities longer than two years, indicating the Currency Commissioners' understanding that a proportion of the currency would always remain in circulation and need not be 100 percent backed by liquid assets (though it remained backed 100 percent by external assets) (King, 1957: 29). Post-occupation issues consisted of a new series of notes which had been approved before the Japanese occupation but which had not been actually put into circulation (Annual Report, 1941-1946: 5, note iv).

"In 1953 notes of the Board of Commissioners of Currency, Malaya and British Borneo, dated not earlier than 1 July 1941, became legal tender in British North Borneo. The notes were of denominations of 1 cent to Malayan $10,000. British North Borneo Chartered Company notes ceased to be legal tender from 1 September 1953, but remained redeemable for their face value in Malayan currency when deposited at banks or treasuries" (North Borneo annual report 1953: 36, cited in Krus & Schuler, 2014: 203). Around the same time, effective 31 December 1952, silver coins issued by the famous Straits Settlements were completely deprived of any transactional value and declared no longer legal tender. Therefore, legal coins in the Malaya and British Borneo currency board system consisted of nickel, cupro-nickel, and bronze denominations less than one dollar (King, 1957: 28).

The currency agreement of 1960

The independence of Malaya in 1957 and the self-government of Singapore in 1959 necessitated the revision of the Currency Agreement. The new agreement was negotiated to take into account the independent status of the two participants. The new agreement included the Governments of the Federation of Malaya, the States of Singapore and Brunei,

and the Colonies of Sarawak and North Borneo. It entered into operation on 1 January 1961. The Board comprised seven members: two from the Federation of Malaya (including the chairman), one from the State of Singapore, one from the Colony of Sarawak, one from the Colony of North Borneo, one from Brunei, and one independent member with banking experience to be appointed by the participating governments. Representatives from Federation of Malaya and Singapore each had three votes apiece, while the rest of the members had only one vote apiece. The Board and its officers and servants were deemed public servants (Currency Agreement, 1960).

The relationship between Singapore and Malaya had shifted. The chairman was now a member from the Federation of Malaya and not from Singapore, and the seat of the Board was moved from Singapore to Kuala Lumpur, Malaya (Lee, 1986: 20-21). Malaya also had a larger representation on the board, with two members compared to Singapore's one member. Along with the shift in leadership, another important change was the provision that any government could withdraw from the Currency Board, given 18 months' notice (Lee, 1986: 20). This allowed a provision for governments to begin issuing their own currencies. The new agreement laid out careful procedures to provide for withdrawal from the Currency Board should any participating governments choose to do so.

Finally, the agreement also laid out the foundation of reserves of the currency board to be held by the Principal Agent , and the limitations on investments of the Currency Fund. The main purpose of the Fund was to meet the demand for redemption of currency. The Currency Fund accumulated all sterling received in exchange for currency notes or coin. At least 30 percent of the Fund had to be held by the Principal Agent in liquid form at all times. The assets of the Fund were to be invested in sterling securities of, or guaranteed by, any Commonwealth Government, or with the unanimous agreement of the Participating Governments, guaranteed by any international monetary institution and held by the Principal Agent or on behalf of the Principal Agent. The board was allowed to hold assets of participating governments up to Malayan $100 million the first year, $200 million the second

year, and $300 million in the third and later years (BCCMBB Annual Report, 1960: 3; see also Krus & Schuler, 2014: 225).

The liquid portion of the Fund held by the Principal Agent was allowed to be held in any fund controlled by the Principal Agent or balances at any United Kingdom bank, Treasury bills of the United Kingdom government, or sterling securities with less than two years' maturity or guaranteed by a Commonwealth government (Malaya British Borneo Currency Agreement, 1960).

This was the first time that the Currency Board was allowed to invest in non-sterling reserves, as long as the securities matured within five years. This feature gave the Currency Board more discretion over its investment portfolio and diversified the investments of the Board. In practice, though, as the financial statements show, the board did not take advantage of this capability. "This agreement anticipated that the days of the automatic issue of currency, against tender to the Currency Board of pounds sterling, were numbered" (Drake, 2004: 144).

The 1960 agreement also provided that the exchange rate could be changed by unanimous consent of the member governments, although in practice it never was.

Calculations and tests

Here I perform three statistical tests to measure how orthodox the Malayan Currency Board was according to the definition given near the start of the paper. The tests focus on the period starting in 1946, when civilian rule returned after the Second World War. The prewar period was short and the currency board suspended operations in Malaya during the war, making analysis of the years before 1946 of limited value.

Ratio of external reserves to monetary liabilities of the currency board

Liabilities are measured as the sum of the whole amount of currency notes and coins in circulation, obtained monthly from the government gazettes. The data were reported semi-annually, in June and December.

External assets are commodities or foreign securities. Foreign securities are those issued by foreign issuers, denominated in foreign currency, and redeemable in a foreign location. In the case of Malaya's currency board, external assets are measured as the sum of the three portions of the Currency Fund. The flagship feature of foreign securities is that the currency board cannot significantly affect their overall supply. Commodities are also external assets, even if produced locally. Orthodox currency boards hold external reserves equal to 100 percent or more of the monetary base. In 1954, the British Secretary of State for the Colonies decided that the Commissioners could invest a part of the Currency Fund in securities issued by the governments of the countries in which the Malayan dollar circulates. If this freedom had ever been exercised, those assets would not have been considered external assets. The Currency Commissioners, however, failed to exercise the freedom and continued to invest in external assets only.

There was no provision in the Currency Agreement for automatic action when the principle of at least 100 percent reserves had been violated. The Agreement merely gave discretion to the Secretary of State and the High Commissioner for the Federation and the Governors to make up the deficiency out of the general revenue of the participating governments on the same scale as for the distribution of profits. Between 1947 and 1963, the years of which semi-annual data is presented, foreign reserve coverage fell slightly below 100 percent only twice (June 1952 and June 1956).

Foreign reserve coverage never exceeded the maximum threshold of 110 percent before 1963. If this had occurred, then annual payments from the Currency Fund Income Account equal to 1 percent of the value of the Currency Fund would have stopped. The rationale of reserves as high as 110 percent was for a margin of protection in case the reserve securities lost their value (Hanke & Schuler, 1994: 5). After 1963, the reserve coverage ratio exceeded 110 percent ahead of the breakup of the currency board system and conversion to central banking. These calculations affirm that the Currency Board did, in fact,

act as an orthodox currency board by definition of maintaining at least 100 percent reserves.

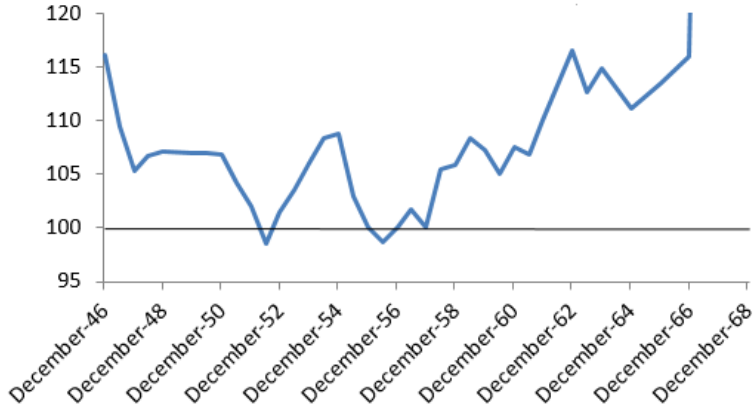


Figure 1. *Foreign Reserves / Monetary Base (%)*

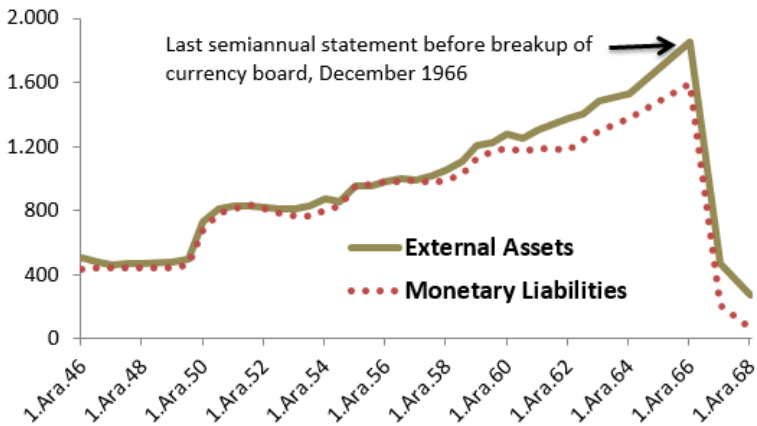


Figure 2. *Assets and Liabilities (Million Malyan $)*

The monetary base of the Malayan currency board system was the sum of notes and coins in circulation. In an orthodox currency board, at any time, a holder of notes or coins in circulation should be able to redeem those notes or coins for sterling at the fixed exchange rate set by the currency board. The Malayan Currency Board honored that obligation and,

according to my calculations, maintained adequate foreign reserves for redemption.

The Gross, Net, and Active amounts of currency in circulation are shown in the accompanying spreadsheet from 1948 to 1960. The amounts are reported for March, June, September, and December each year. Gross circulation includes currency notes and coin in government treasuries and with the banks. Net circulation is gross circulation minus government treasury holdings and active circulation is net circulation minus bank holdings. (Generally, net circulation was so close to gross circulation that it would be hard to see in the graph below, so it is omitted.) Net circulation, in other words, is the total currency notes in the hands of the public and the bank but not in the treasuries (King, 1957: 64). The graph below shows that gross circulation exceeded active circulation, as expected of an orthodox currency board. Furthermore, the currency in circulation grew over the time period, showing the currency board's automatic response to a growing economy and growing demand for currency notes. It is important to note that, when British pounds were exchanged for Malayan dollars, the money supply in England was unchanged. Conversely, when Malayan dollars were exchanged for pounds, the money supply in Malaya fell (King, 1957: 42).

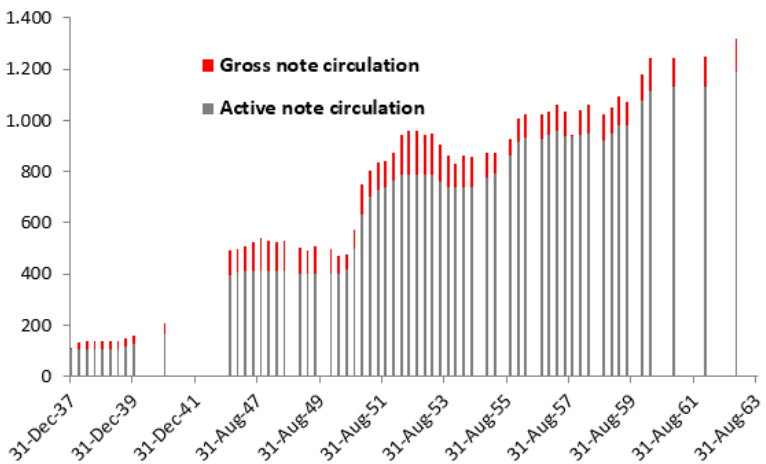


Figure 3. *Note Circulation (Million Malayan $)*

Year-over-year changes in monetary liabilities and foreign reserves

The year over year changes in absolute monetary base and external assets is exactly equal to the year over year changes in total liabilities and assets. The graph below calculates foreign assets as the total Currency Fund as described above, and currency circulation as the aggregate amount of notes and coins reported every six months in June and December in the Singapore, Brunei, and Malaya or Malaysian government gazettes. For most of the Currency Board's existence, no clear pattern identifies either the change in external assets or the change in currency in circulation as having a larger trend than the other. The two are closely correlated until diverging in 1963 ahead of the Currency Board's breakup. The plunge at the end indicates old Malayan currency being redeemed for new national currency in Malaysia, Singapore, and Brunei.

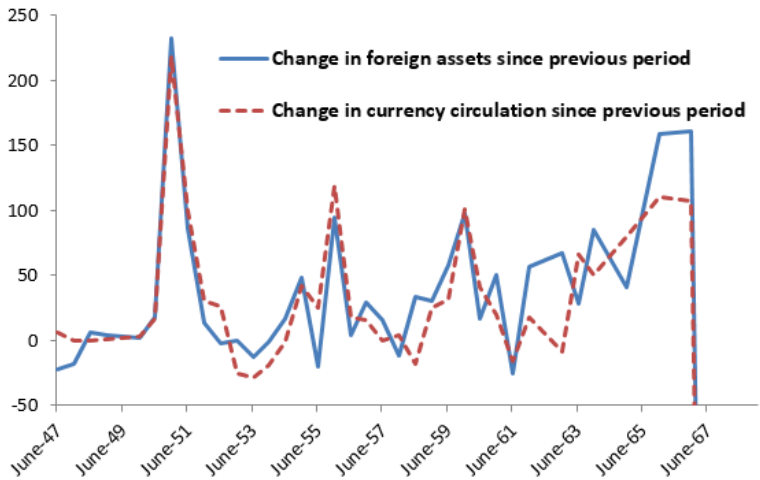


Figure 4. *Balance Sheet Changes (Million Malayan $)*

Reserve pass-through ratio

The reserve pass-through ratio measures year-over-year change in the monetary base divided by year-over year-change in net foreign reserves. The monetary based is calculated as the sum of the currency notes and coins in gross circulation. Net foreign reserves are calculated as the sum of the Currency Fund

because the entirety of the Currency Fund was held abroad, invested in foreign assets. The reserve pass-through ratio is measured year over year to eliminate seasonal effects and diminish the importance of one-time events. A typical reserve pass-through ratio should be near 100 percent for an orthodox currency board, but in practice may fall between 80-120 percent (cf. Hanke, 2008).

Reserve pass-through was volatile from 1950 through 1964, indicating possible unorthodoxy of the Malayan Currency Board. The graph uses six-month data reported in the Singapore and Malayan government gazettes. The analysis below drops data points for which data are missing in the accompanying spreadsheet.

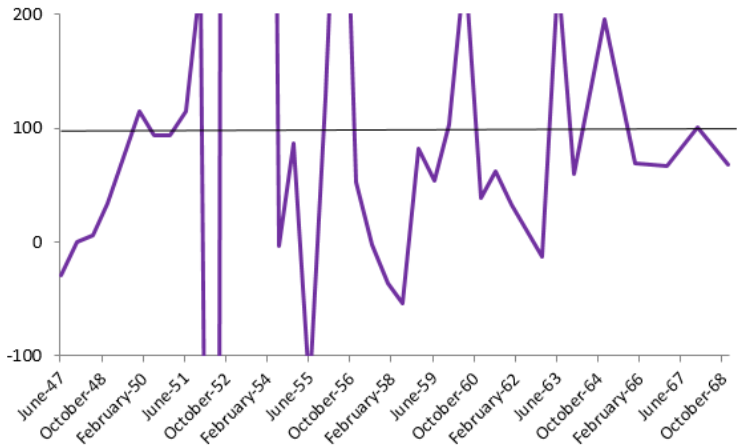


Figure 5. *Reserve Pass-Through (%; 100% = most orthodox)*

The breakup of the currency board

This essay mentioned the features of the currency board system when discussing the Currency Agreement of 1938 and subsequent agreements of 1950 and 1960. It was these same features that eventually led to the demise of the Currency Board and the transition to a central bank in Malaysia. First, the Currency Board had no discretionary power to increase or decrease currency issue. While this limited fears of inflation due to over-issuance, it eventually became a perceived demerit,

as the Currency Board had no power to stabilize the economy with larger currency issues. In the event of falling exports and a balance of payments deficit, the Currency Board could not increase the money supply.

Second, the Malayan dollar was backed by at least 100 percent reserves, which gave investors confidence and increased credibility in the currency. However, during the 1960s, this reserve ratio appeared too conservative. It allegedly caused an unnecessary "locking up" of resources that could have been diverted to development purposes (Lee, 1986: 35). Critics argued that Malaya would have achieved the same credibility and confidence with only 75 percent reserves.

Interestingly, the central banks in both Singapore and Malaysia today both have foreign assets substantially greater than the monetary base. In Malaysia, total reserve money equals about 230 RM billion , and total foreign assets equal US$ 94.0265 billion . Converting total foreign assets to Malaysia ringgit at the current exchange rate of about 1 RM = 0.23 USD, we have total foreign assets equal to RM 402.4 billion. The resulting ratio of foreign assets to reserve money (also called the monetary base) equals about 175 percent. In Singapore, reserve money equaled S$55.2 billion at the end of 2014, and foreign assets equaled S$345.2 billion . The resulting ratio of foreign assets to liabilities equals about 625 percent.

In 1954, The International Bank for Reconstruction and Development (IBRD) was tasked with assessing Malaya's potential for economic development and to make recommendations. The Mission's conclusion was to recommend a central banking system in Malaya to manage the money and credit situation (Drake, 1969). This proposal was endorsed by Mr. G.M. Watson, a Bank of England official, and Sir Sydney Caine, an economic advisor to the government of Singapore. They were engaged by the governments of Malaya, Singapore, and the United Kingdom to investigate the IBRD's suggestion (Drake, 2004: 143). When Malaya alone first obtained independence in 1957, it decided to go ahead with the establishment of its own central bank although it left the door open for the anticipated later entry of Singapore.

The Central Bank of Malaya (Bank Negara Tanah Melayu) was then established in 1959 (Drake, 2004: 131). At this time, however, it did not have control or authority over the currency supply. Five years later in 1964, "the Bank's jurisdiction was extended over the whole of the then Malaysian area. Notice of replacement was served on the Currency Board, to take effect from June 1966. Bank Negara Malaysia (Central Bank of Malaysia), as it was renamed, stood poised to become the bank of issue and trust Central Bank in the Malaysian environment" (Drake, 2004: 145). Later that year, "On 12 December 1964 the government of Malaysia informed the Board that it intended to replace the Board with the Central Bank of Malaysia as the sole currency issuing authority" (BCCMBB Annual Report, 1964: 3). The notification would have ended the Board's currency issuing authority Malaysia not later than 11 December 1966, and coins a year later. On 5 August 1966, however, Malaysia, Singapore, and Brunei signed an agreement permitting the Board to continue issuing currency for six more months, until 11 June 1967 (BCCMBB Annual Report 1966: 3; see also Krus & Schuler, 2014: 225).

Singapore proposed to extend the continuation of the currency board system past June 1967, but the proposal was rejected by Malaysia for the following reasons (Lee, 1986: 37):

1. It could not soften the impact of external fluctuations on the whole economy, arising from the rise or fall of export earnings.
2. It locked up part of financial resources (foreign exchange reserves) which might otherwise be used for the import of capital equipment necessary for economic development
3. It was deflationary in the long-run and so not suitable for a growing economy with rising income and population

Despite Singapore's plea to extend the currency board system, Bank Negara Malaysia became the sole currency authority in Malaysia effective 12 June 1967 (BCCMBB Annual Report, 1967: 3). Bank Negara issued currency for Malaysia only, while the Currency Board issued currency to the whole Malayan currency area (Lee, 1984: 32). The new central bank took over the offices of the Currency Board in Kuching from

the Sarawak government, and began to supervise and manage the remaining offices. Offices in Kuala Lumpur, Singapore, Penang, Kuching, and Kota Kinabalu were maintained by the Currency Board under Bank Negara Malaysia's supervision for the remainder of the year. The Board commenced redemption of its currency on presentation by the new currency authorities at the rate of 2 shillings 4 pence per dollar in accordance with provisions in the Currency Agreement. The new currency issuing agents in Singapore and Brunei were the Board of Commissioners of Currency, Singapore, and the Brunei Currency Board, respectively.

Bank Negara Malaysia continues to operate as Malaysia's central bank today. It has maintained some vestiges of the currency board's main features. From 1998 to 2005, it pegged the Malaysian ringgit to the dollar. As mentioned, the bank also maintains foreign assets in excess of the monetary base, although it was believed during the end of the currency board system in the 1960s that a foreign reserve coverage ratio above 100 percent was detrimental to economic success. In 1993, the Bank Negara introduced the Ringgit Malaysia (RM) to replace the use of the dollar sign. "Ringgit" had already been used in the Malay language to signify the currency; now it also became the official name in English.

Conclusion

The Malayan Currency Board acted as an orthodox currency board from 1946 to 1967 because it was the sole issuer of currency, maintained the required amount of reserves, maintained the fixed exchange rate to the sterling, and failed to engage in any central banking activities during its operation. Statistical analysis finds that the currency board was often unorthodox in its reserve pass-through ratio, and isolated dips below 100 percent foreign reserve coverage in 1952 and 1956. It is possible that, in some cases, the reserve pass-through ratio is not a good indicator for currency board orthodoxy. This question merits further study of the data and development of additional tests to measure currency board orthodoxy. This study gathered and digitized currency board data from 1946 to

1967, yet some gaps remain. It is possible that the missing data may affect the significance of the statistical tests.

For most of its existence, the currency board was orthodox by statistical standards measuring the reserve coverage ratio and currency in circulation. The gross and net amount of currency in circulation increased as demand for the Malayan dollar expanded with the growing economy. While Malaya's currency board was ousted for a central banking system effective in 1967, the currency board laid the foundation for Malaya's economic growth throughout the 20th century. Today, Malaysia's economy is the third-largest in Southeast Asia, while Singapore's is the second-largest. The economies of Malay and Singapore remain dependent on trade through the Strait of Malacca and various port cities and on services connected with that trade. The currency board maintained a fixed exchange rate throughout its existence, which helped develop trade relationships that still exist and thrive today.

References

Bank Negara Malaysia, (2015). Statement of assets and liabilities. 30 November [Retrieved from].

Blackett, B. (1934). Report on Question of Malayan Currency. *Straits Settlement Legislative Council* Paper, No.78. Singapore: Government Printer.

Board of Commissioners of Currency, Malaya, (1947). *Report on the Working of the Malayan Currency Commission for the Period 1st January 1941 to 31st December 1946*. Singapore: Government Printing Office.

Board of Commissioners of Currency, Malaya and British Borneo (BCCMBB), (1961-68)). Annual report. 1961-1968. *Report of the Board of Commissioners of Currency, Malaya and British Borneo.* Kuala Lumpur: Board of Commissioners of Currency, Malaya and British Borneo.

Chalmers, R. (1893). *A History of Currency in the British Colonies.* London: Eyre and Spottiswoode for Her Majesty's Stationery Office.

Commissioners of Currency, Malaya and British Borneo (1952-1960). Annual report, 1952-1960. *Report of the Commissioners of Currency, Malaya and British Borneo.* Kuala Lumpur: Commissioners of Currency, Malaya and British Borneo.

Currency Interchangeability Agreement, Brunei. 1967. Retrieved from the Monetary Authority of Singapore Web site. Accessed 3 December 2015. [Retrieved from].

Drake, P.J. (1966). *Money and Banking in Malaya and Singapore.* Singapore: Malayan Pub.

Drake, P.J. (1969). *Financial Development in Malaya and Singapore.* Canberra: Australian NUP.

Drake, P.J. (2004). *Currency, Credit, and Commerce: Early Growth in Southeast Asia*. Burlington, Vermont: Ashgate Publishing Company.

Hanke, S.H. (2008). Why Argentina did not have a currency board. *Central Banking,* 18(3), 56-58. [Retrieved from].

Hanke, S.H., & Schuler, K. (1994). *Currency Boards for Developing Countries: A Handbook*. San Francisco: ICS Press.

King, F.H.H. (1957). *Money in British East Asia.* London: Her Majesty's Stationery Office.

Krus, N., & Schuler, K. (2014). Currency board financial statements. *Currency Board Working Paper*. [Retrieved from].

Lee, S.-Y. (1974). *The Monetary and Banking Development of Singapore and Malaysia.*

Malaya (Federation). (1938-1951). Board of Commissioners of Currency. Annual report. 1938-1951. *Report of the Commissioners of Currency, Malaya.* Kuala Lumpur: Commissioners of Currency, Malaya.

Monetary Authority of Singapore (MAS). (2015). Monetary authority: Assets and liabilities. Updated 13 November 2015. Accessed 10 December 2015. [Retrieved from].

Skully, M.T. (1984). *Financial Institutions and Markets in Southeast Asia: A Study of Brunei, Indonesia, Malaysia, Philippines, Singapore, and Thailand.* New York: St. Martin's Press.

Uqbah I., Hussin, N., & Seman, A.A. (2014). *The Historical Development of British Investment in Malaya Before the Second World War*. Munich: GRIN Verlag. [Retrieved from].

Government Gazettes and Laws:

- British Military Administration, Malaya (Singapore Division), *British Military Administration, Malaya, Gazette (Singapore Division)* (also listed in library catalogs as *Gazette of the Straits Settlements (Territory under British Military Administration))* (1945-1946)
- Malayan Union, *Government Gazette* (1946-1948)
- Federation of Malaya, *Government Gazette* (1948-1963)
- Federation of Malaya, *His Majesty's Government Gazette* (1963-1967)
- Colony of Singapore, *Government Gazette* (1946-1959)
- State of Singapore, *Government Gazette* (1959-1965)
- Republic of Singapore, *Republic of Singapore Government Gazette* (1965-)
- Straits Settlements, Currency Ordinance of 1938: [Retrieved from].
- Malaya, Currency Ordinance of 1960

Malaya, Currency Ordinance of 1950

2 A child's guide to currency board systems: Sri Lanka's case

Weerakoon A. ***Wijewardena***

Introduction

Aseni, a high school student studying economics, has been in the habit of discussing everything relating to economics with her grandpa, Sarath, an ex-official of the Ministry of Finance. Their latest enterprise has been to discuss the hot topic in the country, namely, the establishment of a currency board in Sri Lanka.

The following is the conversation between the two:

The origins of a currency boards system in Celyon

Aseni: *Grandpa, have you heard that there are many in the country now who advocate that Sri Lanka should reestablish a currency board system? Why has this become a hot topic today?*

Sarath: Aseni, a currency board system is not an alien to Sri Lanka. During the British period of old Ceylon, the currency issue in the colony was handled by a currency board which the Britishers had established in 1884. This Board functioned well

until the newly independent Ceylon decided to establish a central bank in 1950. The operation of the currency board has been well analyzed by H A de S Gunasekera, a former professor of economics at the University of Ceylon, in his doctoral thesis submitted to the University of London titled 'From Dependent Currency to Central Banking in Ceylon: An Analysis of Monetary Experience 1825-1957'[1]. Gunasekera had done this research under the supervision of two well-known banking experts of the day, R.S. Sayers and J.S.G Wilson. His thesis is the best source for anyone to learn of the working of the monetary system in Ceylon before the currency board was established, how the currency board had performed, and why Ceylon decided to replace the currency board with a central bank.

Aseni: *Wow! He has called the currency system before the establishment of the central bank 'a dependent currency'. Why has he said so?*

Sarath: That is because the currency issue in old Ceylon from 1825 had been linked to the colony's acquisition of specie, another term for coins, from abroad through international trade[2]. Therefore, it was dependent on the performance of international trade. The colonial economy was dependent on the exportation of commodities from Ceylon, first coffee, and then tea and rubber. The colony's economy was therefore dependent on the markets outside the country. Since the currency issue was linked to the export performance, it was also dependent on what was happening outside the country. Hence, irrespective of whether the currency was issued by traders or banks or the currency board, it was dependent on the international trade. That was why the currency issue system was called a dependent currency. A criticism against this was that an economy had a domestic sector in addition to the external trade sector and the currency issue had not catered to the requirements of this domestic sector. A central bank was expected to cater to the requirements of both sectors and so, got itself freed from the dependency on what is happening outside the country. Therefore, a central bank could issue currency not only against the foreign assets it could acquire

through international transactions, but also against the domestic assets it could create at its discretion. Hence, we can loosely call the currency system prior to the establishment of the central bank a 'dependent currency system' and the system that has been established after its establishment a 'freed currency system'.

Aseni: *I now understand why it was called a dependent currency. And why did the colonial masters decide to establish a currency board? Couldn't they continue with the system which the country had prior to that?*

Sarath: Ceylon had its own currency throughout its recorded history spanning over three millennia. Old Lankan kings issued their own coins or coins issued by Roman emperors, Indian kings, and the Chinese emperors[3]. The good sign was that even private traders and high-class civil society leaders also issued their own coins of which the quality and the standard were assured by the king. All these coins were of precious metals and if these metals were not available, there was a limit to the issue of coins. Hence, in the olden times, we can safely say that Lankan kings had a currency system that operated exactly like a modern-day currency board. If the kings had precious metals, they could issue coins. If they did not have, they could not do so. Since Lanka did not produce gold, silver or copper, the acquisition of these precious metals was dependent on having a surplus in the balance of payments, just like today. It, therefore, encouraged the ancient kings to work for having a surplus in the balance of payments.

During the colonial period, especially during the British period, trade between Ceylon and other countries expanded making it necessary for a convenient and safe currency system. There was a necessity for making payments for the laborers who had been hired from South India to work on upcountry plantations. When these laborers went back to India, they had to take their savings with them. Today, we get an inflow of remittances and at that time, it was an outflow of remittances. Currency was needed for this purpose and the job was done by banks which were called 'exchange banks 'till 1884. Gunasekera

has given a lucid description of how these exchange banks operated during that period[4].

They were called 'exchange banks' because they exchanged local currency notes issued by them for specie or coins imported from India. This is like the foreign reserves which we have today. When Ceylon exported merchandise goods, it imported specie and those who earned specie could exchange them for local notes. Similarly, when Ceylon imported merchandise goods or Indian laborers took their savings back to India, Ceylon exported specie. So, the net balance of specie accumulating in Ceylon was equal to the surplus in the balance of payments. Similarly, if the export of specie was larger than the import of specie, there was a deficit in the balance of payments.

According to the data presented by Gunasekera, in colonial Ceylon from 1856 to 1882, it was a surplus in the balance of payments because the import of specie was always in excess of their exports. For instance, during this period, import of specie representing the inflows on account of export of merchandise goods amounted to Sterling 28.6 million. The export of specie representing the outflows on account of import of merchandise goods and outward remittances amounted to Sterling 6 million. The net import or the surplus in the balance of payments amounted to Sterling 22.6 million. This was the case when the exports were down due to the coffee blight during 1870 to 1882. Therefore, the colonial Ceylon did not have a forex problem as we have it today.

The exchange banks did not hold a 100%-reserve of specie for the notes they had issued. The requirement was to keep only a minimum reserve of a third of the notes issued. Hence, they were able to issue multiple notes like the multiple deposit and credit creation being done by commercial banks today. This entailed a heavy risk on the solvency and liquidity of these exchange banks. That was because when the economy was in a downturn and more species were exported from the colony, they did not have sufficient cover to meet their obligations on the notes they had issued. In other words, when there was a continuous deficit in the balance of payments because exports

were less than imports and outflow of remittances was high, naturally they went into trouble.

The colonial Ceylon experienced its first banking and monetary crisis due to an acute liquidity shortage experienced by the biggest exchange bank, The Orient Bank. As a result, the orient Bank was forced to suspend the conversion of the notes it had issued on 3 May 1884[5]. Pretty soon, there was a run on other two banks that had operated in Ceylon, Chartered Mercantile Bank and the Bank of Madras. This was a grave situation and the colonial government had to intervene to bring in a solution. That was to set up a currency board in Ceylon to issue government notes backed by a reserve of 100% so that no excess money was issued.

Aseni: *So, the issue at that time was same as today. You issue more currency than the reserves you have and continue to enjoy the fruits when the economy is doing well. But when the economy goes into a downswing causing a chronic balance of payments problem, you have to pay back all the joy you had had with extraordinarily high interest rates. This is exactly what Sri Lanka is facing today. You pay through your nose today for the profligacy you had yesterday. Grandpa, how was the currency board was set up in the colonial Ceylon?*

Sarath: The colonial government went into fast action. But it could draw on the experiences of another colony, Mauritius, which had set up a currency board in 1849 after the failure of the note issuing exchange bank in that country, Mauritius Bank, in 1847. So, there was already a format of the law in the form the Mauritius Ordinance in 1876. What the colonial government in Ceylon did was simply an adaptation of that law with minor modifications to suit the time and specific conditions relating to Ceylon[6]. That was how the Paper Currency Ordinance of 1884 was enacted paving way for the establishment of a currency board in Ceylon. History shows that all the new things are born out of crises, and this is a good example for it.

Aseni: *How was the currency board made of? How did it function, Grandpa?*

Sarath: The currency system that was set up under the Ordinance was a '100% reserve system'. Under the Ordinance, a Board of Commissioners of Currency made up of three government officials, namely, the Colonial Secretary, the Treasurer, and the Auditor-General, was established. As Gunasekera has explained, the Board was empowered to issue currency notes in denominations of 5, 10, 50, 100, and 1000 rupee notes in exchange of silver rupees of India[7]. These rupee notes which were legal tender were convertible on demand into Indian silver rupees at the office of the Board in Colombo. As an interim solution for the failed exchange bank, the Orient Bank, the notes issued by it were accepted for exchange for the new government notes issued by the Board till end of March 1885. Since then, the currency issue in colonial Ceylon was a monopoly of the government, but its freedom to issue currency was restricted by the need for having a 100% reserve.

Aseni: *That is a good safety clause because the commissioners could not issue currency notes just to please the colonial government as it is being done by central banks today. But how was the reserve made up, Grandpa?*

Sarath: The Board was required to maintain at least a half of the notes it has issued in the form of silver rupee coins and the balance half in the form of investments in securities issued by Indian government, UK government, and any other colonial government except the government of Ceylon. As a result, the colonial government could not finance its expenditure by issuing a security to the Board and obtaining an equivalent amount of rupee notes. This is the main difference between the currency board that had existed prior to 1950 and the Central Bank that came to existence after that. If the colonial government had to incur any expenditure program, it had to either raise revenue through taxation or borrow funds from the market. Both will prevent the colonial government from undertaking extravagant expenditure programs just by relying on its money printing power. This was an extraordinary fiscal discipline that had been imposed on the colonial rulers. It is

the same discipline which we do not have in the central banking system which we have today.

Aseni: *Great! But how did the Board acquire its reserves? By borrowing from outside sources as the modern-day central banks are doing?*

Sarath: Ceylon acquired foreign reserves in its normal international transactions. Suppose it has exported goods worth of Rs 100. This will result in the importation of an equivalent amount of silver coins by the country. If the country had imported goods worth of Rs 50, silver coins have to be exported to its value and the relevant bank will meet the import bill out of its earnings. The balance Rs 50 available with the bank can now be sold to the Board for local currency notes. So, one way to acquire reserves is to have a surplus in the balance of payments. Another is the direct investments by foreigners who bring in new capital. To get the local money, they have to sell their silver coins to banks. If the banks do not have money, they now have to sell those silver coins to the Board and get local money. If they do not have silver coins at all, they can borrow abroad and sell them to the Board for local notes. The same is relevant to government's borrowings too. The proceeds of those loans will be sold to the Board for the local money. Therefore, the Board acquires its reserves not by borrowing, but by buying from the market. As a result, whenever there is a surplus in the balance of payments, the reserves as well as the rupee notes issued by the Board will go up. This will be automatically stabilized by an appreciation of the rupee. The opposite will happen when there is a deficit. In that case, the silver coins will go out of Ceylon. The system will be automatically stabilized by a fall in the value of the currency. But both appreciations and depreciations will cancel out making the currency stable. Any need for periodical change will be done the government either by revaluing or devaluing the exchange rate.

Aseni: *Grandpa, it is a wonderful system. It also imposes discipline on the central bank management too. They cannot*

borrow arbitrarily from abroad, build up reserves, and issue currency as the present central banks are doing.

Sarath: Yes, there is a check on the arbitrary money printing, profligate funding of the government, and increasing the country's foreign debt.

The performance of Ceylon's currency board

Aseni: *Wonderful! The currency board of the colonial Ceylon had survived nearly seven decades until it was replaced by a central bank in 1950. But many writers have branded it as a rigid system because currency issue had been linked to the acquisition of specie by the Board. As a result, they have argued that the currency board did not have the flexibility to expand the currency issue when it was necessary to pump liquidity to the system in an economic downturn or a natural disaster. Was it a fair criticism, Grandpa?*

Sarath: That rigid system was also one of its virtues. That is because it could not expand the currency issue, an important component of the money stock of the country, at its will arbitrarily. If it acquired foreign reserves, in this case, Indian silver coins, it could expand the currency issue. If it did not, it was prevented from doing so.

As a result, the colonial government in Ceylon could not finance its expenditure programs by getting the currency board to print currency. Consequently, the colonial government was forced to raise revenue through taxation or acquire funds by borrowing, if it wished to increase its expenditure programs. This is called practicing fiscal discipline at the highest level. Because of the resource limitations, the government could not go for extravagant projects simply to boost the personal egos of those in power.

But because of two reasons, the system was not rigid as the critics had claimed.

Aseni: *What were those two reasons?*

Sarath: One is that at that time money stock consisted of another important component called demand deposits created by commercial banks in their day-to-day business. The other is

that even the currency board enjoyed a certain degree of flexibility if it wanted to increase the currency issue, marginally of course, above the total reserves it was holding.

Aseni: *How could this demand deposit factor help relax the rigidity of the currency board system?*

Sarath: Money stock at that time consisted of all currencies and demand deposits held by public. The public for this purpose, as it is today, was made up of all individuals, businesses, corporations, cooperatives excepting the government entities or commercial banks. The Central Bank's annual report for 1950[8] has published the money supply figures from 1942 to 1950 during which the currency board was in operation.

Commercial banks also create money in a financial system by way of lending to customers in numerous forms. They do so by keeping a minimum cash balance as a reserve of the deposit liabilities and lending the excess reserves to customers. This is being done by just making a book entry by debiting a loan account and crediting the customer's deposit account. That deposit, which has not been made from the real earnings of the customer, is a creation of the commercial bank. But it increases the buying power of the customer in the same way as a currency note issued by the Currency Board.

According to the Central Bank data about which I talked earlier, the currency held by public in 1942 had amounted to Rs 164 million. At end 1950, this figure had nearly doubled to Rs 325 million. But the demand deposits held by the public had increased much faster during this period by about 119% from Rs 267 million to Rs 585. As a result, the demand deposit component in the money stock has increased from 62% in 1942 to 64% in 1950. What this means is that the currency board's so-called rigidity has been more than compensated by the free action of commercial banks by creating multiple deposits and credit during this period. This is seen from the dramatic increase in loans and advances of commercial banks. In 1943, they had amounted to Rs 124 million. At end 1950, they had amounted to Rs 399 million, recording an increase of more than 2 times. Hence, if the system demanded, there was the

possibility of providing more liquidity to the economy. This is important because it has happened in the economic slump during the war and the post war period.

Aseni: *You said that the currency board also enjoyed a certain degree of flexibility in increasing the note issue above the 100% reserve requirement. This is puzzling to me. Can you explain this?*

Sarath: Gunasekera also has referred to this in his doctoral thesis[9]. As I told you, the currency board was required to keep a 100% reserve of the notes it has issued, a half in the form of Indian silver rupees known as the cash reserve and the balance in the form of investment in securities. In the case of the cash reserve, it could go down to a minimum of a third without violating the statutory requirement. This leeway allows the Board to issue notes in excess of 100% of the total reserve subject to two restrictions. One is that it cannot be practiced continuously as a permanent strategy. The other is that such issues are only marginal and should be in small doses.

Take a hypothetical example that the cash reserve is above the minimum threshold of a third of the note issue. Theoretically, the Board can go down to this minimum level without violating the statutory requirement. Suppose that the balance sheet of the Board has Rs 100 as the note issue on its liability side. On the asset side, suppose the cash reserve is Rs 43 and securities investment is Rs 57. Now the Board can reduce its cash reserve to Rs 33, use the excess Rs 10 to buy Indian silver rupees from commercial banks and issue notes to a value of Rs 10. Now reserves will go up to Rs 53, Investments to Rs 57, and the total note issue to Rs 100. It is still short of Rs 2 to satisfy the cash reserve requirement of a half of the note issue amounting to Rs 55. If it buys additional 3 Indian silver rupees from commercial banks, the note issue will go up to Rs 113, the cash reserve Rs 56, and investment portfolio Rs 57. In this way, if the cash reserve falls below the minimum 50%, the Board can increase the note issue by recouping the shortfall reserves till it reaches the minimum level.

Though this is a theoretical possibility, there is no evidence that the Board has actually done it.

Aseni: *So, the system has not been that rigid as the critics have said. But the currency board has to incur expenditure to issue notes, replace them when they become unserviceable, and meet its own operational expenditure. How did it meet these expenditure items? Was it given a subsidy by the colonial government?*

Sarath: That is a good question. In the case of a central bank, the expenditure can be met out of the profits it makes by issuing currency[10]. Those profits are called 'seigniorage', a French term meaning the profits earned by a Lord by issuing coins. A central bank earns seigniorage on currency issues without spending an equal amount of real resources. For instance, when the central bank issues a 5000 rupee note, its real sacrifice is the printing cost of that note and the operational expenditure it incurs to run the bank. This is a fraction of the face value of the note issued. Since all central banks are in the practice of issuing paper money or digital money today, the cost is a negligible amount. Hence, the central bank makes enormous amount of profits, meets its own expenditure on note issue and its replacement, and the operational expenditure of the bank as well. The remaining huge amount of profits is transferred to the Treasury which in Sri Lanka's case has been the largest component of the non-tax revenue of the government.

In the case of a currency board, the sacrifice of the board is the same as the note issue because it has to buy specie from commercial banks to do so. So, on the liability side, the board has note issues and on the asset side, it has the specie holdings. There is no profit made. However, in terms of the statutes, a half of the specie can be used to buy securities issued by the British government or any colonial government other than the colonial government of Ceylon. These investments earn a return, and the board can meet its expenditure from that income. Any remaining surplus after meeting the expenditure can be transferred as revenue of the colonial government.

This is the fundamental difference between a central bank and a currency board. The central bank can make a huge seigniorage, have a lavish expenditure pattern, and even contributes to the government coffers in a big way. That is how

central banks are able to offer lavish perks to its officers and become an important source of revenue for the government. Currency boards, to the contrary, are not big money makers, and hence, must keep their expenditure as frugally as possible. Since the earnings on the investment reserve is not that high, they are not big contributors to the government as well.

Aseni: *Great! Has the currency board in Ceylon kept the needed reserves to back the notes it has issued?*

Sarath: Yes, of course. According to the data published by the Central Bank in its first annual report, during 1938 to July 1950, the total reserves have always been above 100% of the notes issued by it. Remember this is the war period during which the economy of Ceylon had gone into a slump. Even during that period, the average reserve position has been 109% with 123% in some years. Hence, the currency board has been up to its job as envisaged. This led H.N.S. Karunatilake, a former Governor of the Central Bank, to give a good certificate to the currency board in his assessment of the operations of the Central Bank of Sri Lanka titled 'Fifty Years of Central Banking in Sri Lanka: 1950-2000'[11].

I will quote Karunatilake for you: 'As the foreign exchange reserve under the System was always at a minimum of 100 percent, the actual reserve often exceeded this figure. There was no danger that the money supply would increase by some multiple of the foreign currency that was deposited with the currency board. In practice, the currency board maintained a reserve of more than 100 percent which meant that very often for foreign exchange received, it issued a Ceylon currency in much lower proportion. Thus, by maintaining a reserve of more than 100 percent, the currency board mechanism actually exerted a general contractive effect on the money supply. Therefore, the full effect of a surplus in the balance of payments did not always operate on the money supply. By this means, the system of currency issue minimized monetary disturbances in the pre-war economy'.

This observation is important because it has come from a former Governor of the Central Bank who has critically assessed the performance of the Bank in its first fifty years.

Aseni: *The currency board system was a great stabilizer of the economy because surpluses did not force it to issue more currency than necessary, and deficits did not lead to monetary contraction because commercial banks issued their own money by creating demand deposits. This is the discipline which we lack today. But isn't it akin to the 'constant money growth rule' proposed by Nobel Laureate Milton Friedman[12] for central banks if they are interested in avoiding inflation?*

Sarath: In a way, yes. Friedman said that central banks can avoid inflation if they allow the money supply to grow at the same rate as the real economic growth. What he said was that central banks should avoid excessive increases in money supply. When people have money in their hands above their needs, they will use that money to buy goods and services causing the aggregate demand to increase. Since the aggregate supply is determined by real forces like capital stock, technology, and human capital, the excess demand will push the prices up. Hence, money is neutral on the real economic activities. Therefore, the central bank should just do its duty by providing liquidity to the economy and nothing more. This can be done by allowing money supply to rise at a constant growth rate. The mistake is done when this rule is violated. We expect the central bank management to use its prudence and wisdom to avoid it. But very often, they fail in their duty.

A currency board will force authorities to follow this rule and therefore, they do not cause inflation or currency depreciation to happen through arbitrary increases in money supply. Those who object to currency boards will say that it is a loss of monetary independence in which they can respond to economic slumps by providing a stimulus to the economy through expansion of money supply. This was what all central banks had done in response to the COVID-19 pandemic. But the results have been disastrous as revealed by the rising inflation from USA, to India, to Sri Lanka, just a few examples. Hence, this monetary independence should also be exercised cautiously. If it is mishandled, the whole nation will have to pay through its nose. To its credit, the currency board by following the Friedman rule long before it was pronounced by him had effectively handled the economic slumps in Ceylon caused by

the coffee blight in 1880s and global economic depression in 1930s. It did not provide a stimulus, followed its rule, and got the real sector to come out of its ailment on its own within a short period of time.

Aseni: *Thanks Grandpa for clarifying it for me.*
Sarath: Let's continue this discussion.

Why did Ceylon give up currency board, while Singapore did not?

Aseni: *I am puzzled, Grandpa. If the currency board system had functioned well, why did the independent Ceylon choose to replace it?*

Sarath: Aseni, it is a long story. Its root can be traced to a young Ceylonese politician called J R Jayewardene[13] who had been a member of the political movement called Ceylon National Congress. In 1939 he submitted a comprehensive policy package which Ceylon should adopt after it gets independence[14]. This policy package which was nationalistic in nature bore the evidence of his wish to use expansive fiscal policy even at that early stage. If you look at what he proposed you will observe that a government with normal tax potential cannot meet those targets.

Aseni: *What were his proposals, Grandpa?*

Sarath: First, he suggested that the independent Ceylon should give priority to local businesses and not to foreign owned ones. Since foreigners will bring in foreign exchange, if you close doors for them, you close the door for future non-debt forex flows as well. Second, he suggested that the foreigners should be prohibited from getting local jobs. In other words, all jobs should be given to local people. Third, he suggested that Ceylon should ensure food security by producing more through both intensive and extensive farming. Farmers should be supported, he said, by giving them inputs at subsidized rates, high tariffs and banning the importation of all foods that can be cultivated locally. Fourth, he said that the distribution of food products should be a government

monopoly. Fifth, land fragmentation should be prevented by government buying lands that have been placed for sale. Sixth, main and base industries should be a government monopoly. Seventh, importation of essential commodities should also be a government monopoly. Eighth, the public transport should be run by the government. Ninth, primary, vocational, adult, and technical education should be provided by the government. Tenth, students should receive their education in mother language and English should be taught in schools as a second language.

Aseni: *OMG! He cannot blame Bandaranaikes [15] for implementing that program after 1956. It seems they have copied JR when they implemented a purely nationalistic state-run economic development policy. But how does it relate to discontinuance of the currency board in favor of a central bank?*

Sarath: It will become clear if we look at his first few budgets and how he openly advocated for the active role which the central bank should play in the economy. Even in the first budget he presented in 1947 before Ceylon formally got its independence, he said that the government sector should be expanded. He had said that the government should control prices, interest rates, and investments which an independent central bank would not do without proper assessment. Upholding the need for having deficit budgets, he had expanded the government expenditure. During 1939 to 1946, the colonial government on average spent Rs 237 million as recurrent expenditure. JR increased it to Rs 742 million. Regarding the total expenditure of the government, he increased it to Rs 1223 million by 1952. To finance the deficit, he borrowed heavily from the market. The total was Rs 698 million. Out of that, Rs 312 million was from the newly established Central Bank[16]. Naturally, he could not have done it had the currency board continued in Ceylon.

Aseni: *But the establishment of a central bank in place of the currency board was recommended to him by an expert he had got from the Federal Reserve Bank of USA. So, he was not to be blamed, though he was a beneficiary. Isn't it the case, Grandpa?*

Sarath: You are correct, Aseni. However, according to his biographers, K M de Siva and Howard Wriggins, he had deliberately not invited the Bank of England to send an expert from the UK[17]. Probably, he had the fear that an expert from the Bank of England would recommend the continuation of the currency board. So, he invited the Federal Reserve Bank to send an expert and the expert who was fielded was John Exter who already had experience in setting up a central bank in the Philippines. If one compares the Monetary Law Act which he had recommended and the Central Bank of the Philippines Act, one will find that both are almost identical. Hence, Exter had come to Ceylon with a format of the central bank he will be recommending. So, the continuation of the currency board had already been ruled out. Exter, in his report, had argued that Ceylon needed a central bank at that time[18]. Critics say that he did so to please his Master. But to his credit, he had said in his report to JR that Ceylon should not follow Keynesian policies blindly. Therefore, it was up to the leaders of the country to refrain themselves from following those policies. But that was not what was followed by Sri Lankan leaders. They ran budget deficits and used the Central Bank money to fill the gap.

In the opening ceremony of the Central Bank on 28 August 1950[19], the Prime Minister D.S Senanayake had observed that in many countries the central bank power to issue money had been abused. He said that the excessive use of the central bank credit had reduced the real value of money held by people. It also has resulted in the dissipation of the foreign exchange reserves. He was referring to the domestic inflation and the depreciation of the exchange rate. He had warned the new central bank not to make the country bankrupt by a loose currency policy like the post-war China and Greece.

But JR in his address countered DS subtly. He said that money is there for the benefit of man and man is not there for the benefit money. What he meant was that the central bank should not adhere to strict money rules but make available the needed money for the benefit of the people. He was not worried that excessive money will lead to inflation and currency depreciation as opined by DS. He wanted the central bank to contribute to the economic and social development of Ceylon.

This was in line with his embracing the Keynesian ideology for economic stabilization after reading John Maynard Keynes' 1936 book General Theory of Employment, Interest, and Money[20]. You will recall that Keynes recommended in that book that the government should increase the total demand of the economy by increasing its expenditure through deficit financing. The central bank was the main source of such financing.

These were JR's plans. A currency board would have been an obstacle for the realization of these plans. So, independent Ceylon discontinued the currency board system. Instead, it went for a central bank. All finance ministers since independence found the Central Bank to be a cash cow which could be milked at will to fund their profligate expenditure programs.

Aseni: *The truth in the warning given by the first PM of Sri Lanka can be found today more than any other time, though this PM was said to have been schooled only up to the Seventh Standard. This is the beauty of a leader having common sense that is much more valuable than a ton of university degrees. The critics say that today's Central Bank has caused an explosion in money supply to the extent of Rs 4 trillion or 52% during the 27-month period from December 2019. The result has been inflation is rising at 30% with food inflation at 47% according to official sources. The usable foreign reserves have fallen below $ 50 million according to the finance minister Ali Sabry[21]. But analysts say that this is also not correct because the Central Bank's foreign reserves are negative to the extent of $ 4 billion with foreign borrowings amounting to $ 6 billion[22]. I find that it is a pathetic situation, Grandpa. But I have read that Singapore which also had a currency board inherited from the British decided to continue with it in 1965 when it became fully independent. Why did they do it, Grandpa?*

Sarath: The policy strategy adopted by the Singaporean leaders was in contrast with that was adopted by Ceylonese leaders. The independent Singapore, instead of abolishing the currency board it had inherited from the British, decided to continue with it. The reasons for arriving at this decision have

been explained by its first Finance Minister and First Chairman of the currency board, Dr Goh Keng Swee, in an article he had contributed to the silver Jubilee Publication of the currency board titled Prudence at the Helm. In this publication released in 1992, Goh has explained in an article titled Why a currency board? why the Singapore's old guard chose the currency board system in preference to the establishment of a central bank which was the popular vogue of almost all the newly independent countries[23].

Singapore set up a currency board to issue currency backed by 100% foreign reserves and a monetary authority to perform the functions of a central bank without power to issue currency. According to Goh, this was decided by the Cabinet of Ministers reaching at his own decision independently. Therefore, Goh has explained his decision.

As a student, Goh had read Keynes' General Theory not once but several times. He says that he found it to be a very badly written text. He could not understand why Keynes had measured all aggregates like GDP or money supply in wage units. That was to measure the value of a coconut not in terms of money say Rs 100, but in terms of the wages paid to produce that unit. Keynes' recommendation was to increase money supply to raise the aggregate demand and it will certainly increase the prices. Keynes knew this, according to Goh, and he wanted to hide the price factor from the system that is to be set up. That is, when the prices go up, you will measure the value of a coconut not in terms increased prices but increased wage units. Thereby he was able to hide the price factor. But many nations which had adopted the Keynesian prescription had come to face with the reality of inflation setting in the system and destroying what was expected of Keynesian policy. This had been predicted by the Singaporean old guard even at that early stage.

Goh says that they did not believe that Keynesian policy prescription would bring in prosperity to Singapore. How can money create wealth? They had argued. The way to a better life was through hard work, first in schools, then in universities and polytechnics, and finally in workplaces. They had concluded that diligence, education and skills will create wealth and not

central bank credit. Hence, Singapore had decided to continue with the currency board system. It had in fact maintained a reserve level of more than 100% to back the currency it issues. The result was a strong currency and low inflation. You will note, Aseni, that both are luxuries in Sri Lanka which had gone for a central bank in 1950.

Goh says that they wanted to convey three messages through this bold policy. One was to the international community that Singapore wanted to maintain a strong currency which is the only hedging against inflation in a country which depends on imports. The second was to their citizens. If they wanted better public services, they should be prepared to pay because there is no such thing as a free lunch. Third, the academics in Singapore should realize that what is fashionable in other countries should not be relevant to Singapore.

So, you will realize that leaders in Ceylon did not have this foresight. They still do not have.

Aseni: *Well-revealing. But how is the track record? Has Singapore been successful in attaining its objective?*

Sarath: I will show you two graphs, one relating to Sri Lanka's experience, and the other relating to Singapore.

The first graph shows that Sri Lanka's inflation rate has been higher than the inflation in the benchmark country, USA. Hence, Sri Lanka rupee has depreciated along with that development. The second graph shows that Singapore had kept its inflation below the US inflation. As a result, the Singapore dollar has appreciated against the US dollar.

There is no better evidence to appraise the success or failure of central banks as against currency boards.

Aseni: *Thanks, Grandpa. We now see where we are and why we are there.*

Steve Hanke's crusade for currency boards

Aseni: *Grandpa, Steve Hanke has been releasing a tracker of global inflation and marked Sri Lanka's inflation as the second highest at 131%. But some Sri Lankan economists have disputed Hanke and said that they do not agree with his inflation calculation*[24]*. What is this dispute?*

Sarath: Economics is a science, and the main feature of science is that its theories can be questioned by other scientists with proper validation. Science has advanced because of this specific feature. Therefore, there is nothing wrong in the local economists questioning what Hanke has been doing. These disputes and debates surely add to our knowledge. Hanke is a disciplined economist. Therefore, he will certainly welcome such criticisms if they are substantiated by valid facts. But what the newspaper has published is some sweeping statements attributable to those local economists for the benefit of its readers who love to read sensational stories. We must therefore dissect those statements, remove the sensational part, and see how far they have provided a fair criticism of Hanke's work.

Aseni: *I understand. But is there any validity in what the critics say?*

Sarath: What critics say is that Sri Lanka calculates inflation in the same way as other countries do. It implies that there cannot be any deficiency in inflation numbers because Sri Lanka follows the global best practices. That global practice is to collect prices of select commodities from the market, assign weights for each commodity which are simply a measure of the importance of those commodities in a typical consumer's basket, and incorporate those weighted prices into a consumer price index to see by how much the basket value has gone up. The consumer price index so calculated reveals the average cost of living of a typical consumer. If the basket value goes up, we say that the cost of living has gone up. If it goes down, the cost of living is eased. When the increase happens for several months, we call it inflation. The opposite is the deflation. The data for computing the consumer price index are collected

through periodical surveys conducted by special data agents. There are several deficiencies in this method.

Aseni: *What are those deficiencies? I thought that they are globally accepted methods.*

Sarath: All economic numbers that we get are estimates and not actual numbers. Estimations have their own deficiencies. Price indexes that we compile also have several deficiencies. One involves the data collection errors. The price data are collected by special data collection agents, and they can make errors by omission or by commission. A second one is the assignment of wrong weights to different commodities in the basket used for compiling the indexes. This is specifically relevant to Sri Lanka today. In the Colombo Consumers' Price Index or CCPI, food category has been given the weight of 28% based on a survey done by the Census Department during 2012 through 2013. These weights may have changed by now, but they have not been revised. There is another change visible after the country was attacked by the COVID-19 pandemic in early 2020. That is, due to the non-availability of non-food goods in the market, consumers now spend a bigger portion of their income on food items. Hence, inflation measured by that index is broadly underestimated. For example, in CCPI, the food category has increased by 57% by the end of May 2022, but the inflation rate is recorded as 39% because of the low weight given to the food category[25]. The third deficiency is the more alarming one. That is, governments might manipulate the indexes to show a low inflation rate to demonstrate the success of their policies. It is now well established that Argentina had manipulated inflation numbers during 2007 to 2015 to show a lower inflation than the actual one[26]. But Argentina is not the only country which has resorted to this practice. Hanke's work has exposed these countries.

Aseni: *How does Hanke's inflation tracker become superior to inflation measured by compiling price indexes?*

Sarath: Hanke uses a different methodology[27]. Instead of using price indexes, he tracks it from a macro point[28]. It is quicker, more convenient, and less costly. When calculating

money supply numbers, we use a similar method. Money supply is the stock of money in the hands of the public. Instead of trying to find out the stock of money by getting the data from people, we use the balance sheets of the central bank and commercial banks to extract the needed numbers. That method is more reliable and less costly. Hanke uses the purchasing power parity or PPP theory to calculate inflation. That theory was first presented by Swedish economist Gustav Cassel in a paper published in 1916[29]. In fact, this theory has so far not been refuted but further developed by subsequent economists like Bela Balassa [30]. It is the basic principle underlying this theory that has been used by the UNDP, World Bank, and the University of Pennsylvania to compute the purchasing power parity concept of GDP calculation. Hence, Hanke does it from the top using the macroeconomic relationships at the aggregate level, while government authorities do it from the bottom collecting data at the micro level. He bases his case for currency boards on these aggregate inflation numbers.

Aseni: *Why is this PPP inflation calculation superior to normal inflation that we calculate through the construction of price indexes?*

Sarath: What Cassel said was that if there are two inflation rates between two countries and if there is free flow of goods between the two countries, exchange rate should adjust upward or downward to make the two prices equal or to maintain the purchasing power parity between the two countries. This is based on the concept of the law of one price that is brought into existence by market interactions. Suppose, for example, the price of a shirt in Sri Lanka is Rs 100 and that in USA is $ 5 and the exchange rate is Rs 10 per dollar. It is more profitable for Sri Lankans to spend Rs 50 to buy $ 5, buy a shirt from USA and sell it at Rs 100 in the local market. Then, at the given exchange rate, he will buy $ 10 and bring in two shirts which he can now sell for Rs 200. This is called arbitraging, that is, buying from a low-priced market and selling at a high-priced market, and it is quite a legitimate activity. What Cassel said was that to remove the arbitraging profits, the exchange rate

should adjust itself to Rs 20 per dollar. This means that if inflation rate in Sri Lanka is higher than the inflation rate in the benchmark country, Sri Lanka rupee should depreciate to maintain the purchasing power parity between the two countries. Though Hanke's working is complex, in simple terms, if we know the inflation rate in USA and exchange rate depreciation in Sri Lanka, we can work back and estimate the underlying inflation rate in Sri Lanka. This is the basis of Hanke's inflation dashboard. Unlike the consumer price indexes which cover a select number of goods and services with weights assigned to each good or service, estimation of inflation at the aggregate level covers practically all the goods and services in the economy. Therefore, it is not necessarily confined to a given consumer.

Aseni: *But for Hanke's inflation estimation to be of relevance, we should have an economy fully exposed to international trade, shouldn't we?*

Sarath: But today's economies are fully exposed to international transactions. Even if we produce goods locally purely for local consumption, we use a fair quantity of imported inputs. To the extent they are used, the depreciation of currency should raise their costs and consequently prices. Take for example, the production of rice. We use imported fertilizers, pesticides, seeds, tractors and other farm machinery, fuel or electricity to operate them, etc. If the currency depreciates, it increases input costs delivering a supply shock. If money is printed continuously, that shock becomes permanent by increasing money aggregate demand. Now the link is clear. To avoid depreciation, one should avoid inflation. To avoid inflation, one should curb money printing. To curb money printing, central banks should not be given discretionary powers. To remove discretionary powers, money printing should be done according to a rule. Such a rule can be enforced effectively only by a currency board and not by a central bank. This is the crux of Hanke's argument.

Aseni: *I now understand it. What it means is that politicians should not be given a free hand to abuse central bank's money*

printing power and central bank managements should not be given discretionary powers which they use at times to please their political masters. But do we have evidence to prove it?

Sarath: The most recent example is that IMF in its report on Article IV consultations had recommended[31] that that Sri Lanka should refrain itself from funding the government through bank financing, commonly known as money printing, as a pre-condition for affording a bailout package to the country. The Central Bank Governor Nandalal Weerasinghe tried to adhere to this recommendation by increasing the rates on Treasury bills and bonds significantly and meeting the government's funding requirements by borrowing from savers in the market. This was thwarted by Prime Minister Ranil Wickremesinghe by announcing that he will permit money printing because he has no money to pay even the salaries of government servants[32]. As a result, in the Treasury bill auction held on 18 May 2022, the Central Bank had offered Rs 90 billion to the market but was able to borrow only Rs 16 billion from the market even at the going rates. This has left a funding gap of Rs 74 billion which should naturally be funded by the Central Bank. That is the curse of the discretionary powers given to the Central Bank management. Instead of trying to develop a permanent funding line through sustainable tax systems, politicians are now turning to the easy method of getting money from the Central Bank.

Aseni: *Has Hanke found evidence to prove this phenomenon?*

Sarath: Yes. He has been working on monetary policy, central banking, and currency boards for some time. He is said to have been fascinated by the idea of currency boards when he learned in early 1980s that Hong Kong had stabilized its currency by setting up a currency board. He set himself on a long research program on the subject and found that even John Maynard Keynes had designed a currency board for Archangel in Northern Russia when the country had been engulfed in civil war following the Bolshevik Revolution of 1917[33]. Though Keynes had agreed to loosen the strict rules pertaining to currency issues under currency board systems, the adhesion to strict rules had helped the Northern Russia to have a stable and

a convertible currency. What is important is that very same Keynes later recommended money printing as the way out for countries to come out of economic recessions. But later in 1990s, Hanke's work on hyperinflation in several countries made him the present-day crusader of currency boards.

Aseni: *This Keynes' following of the strict monetary rules, known as monetary orthodoxy, is news to me. So, what are those other cases which Hanke handled in resolving monetary crises in 1990s?*

Sarath: He was actively engaged in setting up currency board in several countries in 1990s. Apart from Argentina which is a Latin American country, his engagement was mainly in countries that belonged to the former Soviet bloc. They were not pure currency boards but some variations. He helped establish such variations in Estonia in 1991, Lithuania in 1993 through 1994, and Bulgaria in 1997. In Estonia, inflation rate before the establishment of the currency board amounted to more than 1000%. But by 1995, it fell to 29%. By 2003, it was just 1%. Lithuanian inflation rate was 72% in 1994 but fell to 1% by 2004. In Bulgaria, inflation was running above 2000% in the first quarter of 1997 before the currency board was set up. But it fell to 1% in 1998. Hence, overall, in these former Soviet bloc countries, currency board arrangements have helped stabilize prices. Once this target has been attained, it is up to the government to set the country concerned on a long-term real growth path. Currency boards can bring in stability in prices, exchange rates and stability in the foreign sector. Those are nominal achievements which are necessary but not sufficient to attain prosperity and wealth which are real sector attainments. If the government does not seize the opportunity and create an environment conducive for real sector growth, the mere establishment of a currency board does not help a country.

These success stories of currency boards have prompted Hanke to recommend this prescription to other countries with either hyperinflation or galloping inflation. Sri Lanka is one such case and he has been arguing that the country should replace its central bank with a currency board. In fact, this is

not a novelty to Sri Lanka because it had a currency board system before the establishment of the central bank.

Aseni: *Is his case for a currency board system in Sri Lanka validated?*

Sarath: Sri Lanka's politicians had not been very prudent in handling the money printing power of the central bank. Instead of developing a viable and sustainable revenue generation system, they have resorted to borrowing from the central bank first and from commercial banks later to finance their profligate expenditure programs. It has been a common practice in Sri Lanka that politicians have promised various free goods to people without having a proper funding base. When they are faced with the problem of money, they invariably resort to borrowing from the central bank. This has been practiced to an extreme level by the Gotabaya Rajapaksa administration during past two-and-a-half-year period. Borrowings from the banking sector by the government has increased by Rs 3.7 trillion or 132%. Consequently, the money stock has increased by Rs 4 trillion or 52%. Inflation is rising at 39% according to official sources. But according to Hanke's inflation tracker, it is rising by 121%. Sri Lanka has lost almost entirety of its foreign reserves disabling it to undertake the essential import program. Hence, according to Hanke, this is the best opportunity for Sri Lanka to go for a currency board system.

Aseni: *Thanks Grandpa. Let's discuss it further.*

Has the failed monetary borad paved way for a currency board in Sri Lanka

Aseni: *Grandpa, at the Committee On Public Enterprises or COPE meeting last week, the central bank Governor and the two Monetary Board members present had made a startling revelation*[34]*. They had said that there had been unwarranted external interference in the work of the Central Bank, Governor and two other board members had acted to please the political masters and refrained themselves from taking correct action in*

time. This irresponsible behavior by the top management of the central bank has driven Sri Lanka to the present crisis unprecedented in its history. Does this make the case for a currency board stronger?

Sarath: That revelation has pointed to a fundamental weakness in the present central banking system which we discussed last week. That is the danger of the discretionary powers given to a central bank to increase the stock of money at its will. The purpose of giving that power was to facilitate liquidity infusion to an economy if there was a need. But the central bank top leadership was required to use this power prudently always keeping in mind their main responsibility to the people. That responsibility is to keep the value of money they hold at a stable level meaning a near zero inflation rate on the domestic front and a stable exchange rate on the external front. But what has happened in the past, throughout its existence, the Central Bank has failed to keep this promise. For instance, the value of a rupee in 1952 is only less than a fraction of a cent at end April 2022. The promise of a stable exchange rate has been the biggest failure. In 1950 when the Central Bank was set up, a rupee was equal to 21 US cents. At end April, it is only a fifth of a US cent. But this failing process was accelerated after Gotabaya Rajapaksa became President in November 2019. The revelations at the COPE meeting were relevant to this period. It was the story of the imprudent and unaccountable behavior of the top leadership in the Central Bank. Hence, we may pass the judgement that we now live in an era in which people have lost faith in the Central Bank and are now looking for a better alternative.

Aseni: *You say that people have lost faith in the Central Bank. Why do you say so?*

Sarath: I have witnessed the proceedings of previous COPE meetings as an official of the Ministry of Finance. At all these meetings, the Chair of COPE and government members took the side of the Ministry and maintained that the Central Bank should provide funding to the government liberally. They held the view that the Central Bank functions under the sovereign state and, hence, it should work under the direction of the state.

I have seen the Central Bank officers fighting valiantly for maintaining its independence. But in my view, the Central Bank working under the sovereign government is due to the misunderstanding that the sovereign state and the government are one and the same. It is the state which is sovereign and not the government. Both the government and the Central Bank are two arms of the sovereign state created for a purpose. The government has been created under the Constitution, while the Central Bank has been created under the Monetary Law Act, commonly known as MLA. The purpose of setting up both these institutions has been to provide services to people in collaboration with each other. Neither was expected to superimpose its power or authority on the other. However, the previous Governor W.D Lakshman [35] maintained that the Central Bank was a state institution and, therefore, it should obey the instructions of the government identifying both the government and state as one and the same. But the COPE Chair had brought to the attention of the members that the fiscal policy coming from the government should not override the monetary policy being implemented by the Central Bank. That is a good sign, and it actually seeks to establish the independence of the Central Bank. Another important step taken by COPE is to recommend to Parliament that a special select committee should be appointed to examine the failure of those who had either not taken the decision at the correct time or who had taken the wrong decision and assign accountability to those officers. This is the first time the COPE has made such a decision. It itself shows that they have lost faith in the Central Bank in the past. If COPE does not have faith in the Central Bank, what can you say about the public?

Aseni: *What this means is that even when the Central Bank is made independent of the government, its discretionary power is its worst enemy. That is because it permits the top management of the Bank to abuse that power either for the benefit of their political masters or for their own benefit. Am I right, Grandpa?*

Sarath: Most people object to currency boards because they think that it causes them to lose what they call monetary

sovereignty. That is because currency boards take the discretionary power away from them. Instead, they allow money supply to be increased according to a rule. That rule, as we have already discussed, requires the currency board management to issue currency based on the reserves it has. If they do not have reserves, they cannot issue new currency. This rule based monetary expansion is considered preferable to discretionary monetary expansion because it cannot be abused. The claim that the Central Bank should have this discretionary power to provide liquidity to the economy is a misnomer. Even under the currency board systems, as we have discussed earlier, commercial banks can create liquidity by maintaining a reserve less than the total deposit liabilities of banks. The abuse of that power by commercial banks can be prevented by having a strong regulatory mechanism for banks.

Aseni: *The new Finance Minister Ranil Wickremesinghe has announced that he has to print new money to the tune of Rs 1 trillion to pay salaries to public servants. Is he counting on the discretionary money printing power of the central bank?*

Sarath: You are correct. What he says as money printing is the credit granted by the Central Bank to the government. The procedure is that the Central Bank will buy Treasury bills worth of Rs 1 trillion and supplies that money to the Ministry of Finance which in turn can use that new money for making payments. This is a dangerous suggestion. The book value of Treasury bills held by the Central Bank as at the third week of May has amounted to Rs 1.8 trillion. If another load of Treasury bills amounting to Rs 1 trillion is bought by the Central Bank, the outstanding value will rise to Rs 2.8 trillion. This will increase the total reserve money issued by the Central Bank from Rs 1.3 trillion today to Rs 2.3 trillion over the next few months. It is this reserve money which is being used by commercial banks to create additional deposits and credit. The present rate of creation is that when the Central Bank creates 1 rupee as reserve money, commercial banks can create Rs 8 as money being used by people. As a result, if the reserve money base increased to 2.3 trillion, the total money in the system will go up to Rs 18 trillion over the next one to one and a half years.

This is a monetary explosion of about 60% over the present explosion of 53% and it is highly inflationary. The chance of this extraordinary monetary explosion is that the present galloping inflation might accelerate to hyperinflation. Hence, the course of action which the new Finance Minister is going to take is a recipe for disaster. That has been made possible because the Central Bank's Monetary Board has been given discretionary powers to increase the money stock at its will. A currency board which should issue money according to the value of reserves it is holding cannot do this and hence cannot be the causal agent of this disaster.

Aseni: *Doesn't the Prime Minister with his experience as the premier for five earlier times know of the danger of printing money and meeting government expenditure programs? What are its repercussions?*

Sarath: Surely, he should know. If he does not know, he should seek the advice of experts on the matter. Its repercussions are far-reaching. In the first place, it will cause the present galloping inflation to accelerate to hyperinflation. Sri Lanka's inflation is still galloping because like a horse jumping from one point to another, inflation is also jumping from one level to another. We are not yet at hyperinflation because, by definition, hyperinflation is a situation in which prices go up by at least 50% per month. If it happens for twelve months, at the compound growth rate, it is about 6500% per annum. If the country is hit by hyperinflation, that will be the end of the present monetary system with rupees as the medium of exchange. Then, there is an impact on the real economy too. The Monetary Board, in order to remove inflationary pressures, will tighten its monetary policy by increasing interest rates and possibly imposing credit controls. It will cut the economic growth further down which has been marked as a massive shrinkage in 2022. The biggest disaster will occur in the exchange rate. It will put further pressure for the rate to fall and drive the economy toward a bigger balance of payments crisis. Overall, Sri Lanka's macroeconomic stabilization program will be at risk. It will thwart its ability to seek a bailout package from

IMF. So, money printing will bring cheers today, but tears tomorrow.

Aseni: *What this means is that the Monetary Board has a grave responsibility to stop this before it becomes a disaster. But as it was revealed at the COPE meeting last week by two board members, their voice was silenced by the majority decision makers at the Board led by the Governor of the Bank. Given this situation, can the Board function as a responsible body to protect the value of money which people are holding?*

Sarath: The position taken by the two board members that they were overruled by the majority votes at the Board is not correct. Ever since the Monetary Board was set up in 1950, its tradition was to have consensus in its decision making. Even if one member objects to a particular policy suggestion, the Board does not approve of it. Hence, any dissenting member can prevent a contentious decision being taken by the Board simply by expressing his or her objection to it. Following this rule, the decisions of the Monetary Board are recorded as Board's decisions. The dissenting views are not recorded in the minutes. Therefore, once a decision is made, it is a decision of the Board, and one or two members cannot say later that they were not a party to that decision. They are all accountable jointly and severally for the decisions made by the Board. If their objections have been overruled continuously by the Governor or the Finance Secretary or any other Board member acting in concert, as responsible board members, they should have resigned. There are several previous examples of board members acting responsibly in that manner when pressure was exerted on them by outside authorities.

Aseni: *OMG! What this means is that there is a serious deficiency in the governance structure of the Monetary Board. The Board is expected to function as an independent body of experts to protect the financial assets of the people. But if they become a yielding hand to some invisible powers outside and drive a country to total bankruptcy, there is no redress for people. This was evident when Governor W.D Lakshman at every forum thanked the Secretary to the President for appointing him to the*

post. People outside made the judgment that he was acting on the instructions of that particular high official who has no authority to do so. As such, people have now lost confidence in the Monetary Board. This may be the reason for the growing demand for returning to a currency board system today. Am I correct, Grandpa?

Sarath: Yes, indeed. The Monetary Board with its discretionary power to produce money has failed the nation. Instead of functioning prudently, its members, as has been revealed at the COPE meeting, have acted in concert with outside powers. Since, this cannot be stopped by having protection laws, the demand today is that this discretionary power should be taken out and a rule-based money issuing system should be started. That is why this sudden love for currency boards. But the establishment of a currency board today replacing the present central bank is not an easy task.

Aseni: *Why do you say that it is not an easy task?*

Sarath: Due to several reasons. The present central bank is bankrupt with its foreign reserves becoming negative on a net basis. That negative level had been $ 4.4 billion as at end-March 2022. The figures for later months have not been released but it is now estimated to have increased to about $ 5 billion. In addition to this negative foreign asset position, the central bank's reserve money level is at Rs 1.3 trillion or $ 3.6 billion. So, to build the necessary capital base of the new currency board, about $ 8.6 billion need be infused. Sri Lankan government does not have space to do this. Hence, though a currency board is desired, to provide the capital to this board is an impossible task.

One way to avoid this impasse is to liquidate the present central bank, hand over its foreign liabilities to a special unit called a Special Purpose Vehicle or SPV and repay it over a period. A similar procedure was adopted in the Philippines in 1993 when the Central Bank of the Philippines became bankrupt due to excessive foreign borrowings. Those loan proceeds were used by the Bank to keep the Peso rate fixed arbitrarily just like our own central bank. A new central bank called Bangko Sentral ng Pilipinas was established but the

liabilities of the old central banks were transferred to an SPV which was required to repay it within 25 years[36]. It is important to note that the Central Bank of Sri Lanka was modelled on the Central Bank of the Philippines set up in 1948. That was because John Exter who prepared the blueprint of the Central Bank of Sri Lanka was a co-author of the blueprint of the Central Bank of the Philippines[37]. Grove and Exter had warned the Filipino Central Bank to manage its discretionary power of printing money prudently[38]. A similar warning was given by Exter to Central Bank of Sri Lanka that it should not follow blindly Keynesian type of economic policies[39]. Over the years, this warning was ignored, and the Filipino Central Bank became bankrupt. The Sri Lankan central bank is following a similar course.

This road toward bankruptcy will be unavoidable if the government goes on borrowing from the Central Bank Rs 1 trillion to pay salaries to public servants and the Monetary Board chooses to accommodate that request by being a yielding hand to the impending disaster. So, it will be the failed Monetary Board which will be its own destroyer and pave way for a currency board in Sri Lanka.

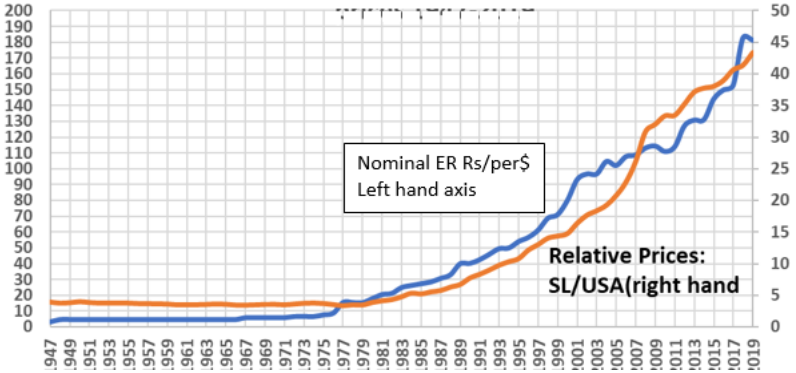


Figure 1. *Sri Lanka: Ruee/Dollar rate against relative price 1947-2019*
Source: Prepared by the author

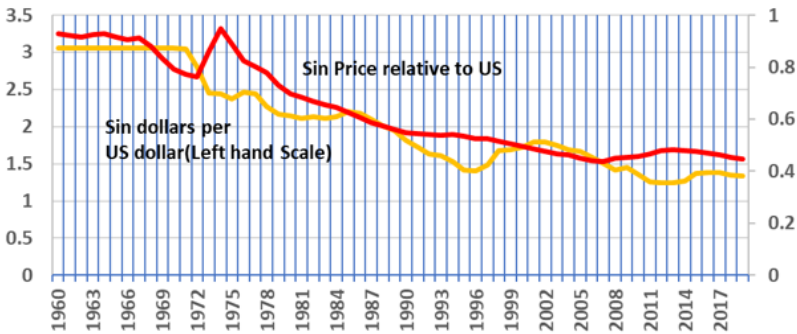


Figure 2. *Singapore: Exchange rate and relative price ratio 1960-2019*
Source: Prepared by the author

Notes

[1] Gunasekara, H.A. de. S (1962). From Dependent Currency to Central Banking in Ceylon: An analysis of Monetary Experience 1825-1957, G Bell and Sons, London.

[2] Ibid, p.v.

[3] Bopearachchi, O., & Wickremesinghe, R.M. (1999). Ruhuna: An Ancient Civilisation Revisited: Numismatic and Archaeological Evidence on Inland and Maritime Trade, R.M Wickremesinghe, Nugegoda.

[4] Gunasekara, op.cit. Chapter III

[5] Ibid, Chapter IV

[6] Ibid.

[7] See, Chapter IV of ibid for a detailed presentation of the working of the currency board.

[8] Central Bank of Ceylon, Annual Report for 1950. Colombo

[9] Gunasekara, op.cit, pp.86-87.

[10] For details, see: Wijewardena, W.A, (2021). Following MMT: Should Sri Lanka rely on Inflation Tax to generate income for cash-strapped Govt? in FT, 22 Feb 2021, Accessed on 31 May 2022. [Retrieved from].

[11] Karunatilake, H.N.S. (2000). Fifty Years of Central Banking in Sri Lanka: 1950-2000, Centre for Demographic and Socio Economic Studies, Colombo, p.2.

[12] Jahan, S., & Papageorgiou, C. (2014). What is Monetarism? Finance and Development, Vol.51, No.1 Accessed on 31 May 2022. [Retrieved from].

[13] J.R. Jayewardene later became the executive president of Sri Lanka in 1978 and introduced the open economy system to the country.

[14] For details, see: De Silva, K.M., & Wriggins, H. (1988), J.R. Jayewardene of Sri Lanka-A Political Biography, Volume I, Anthony Blond, London, pp.100-2.

[15] Two Bandaranaikes, SWRD and his widow Sirimavo, ruled Sri Lanka from 1956 to 1977, except during 1965 to 1970. During their rule, they followed a policy of import substitution, nationalization of domestic as well as foreign companies, expansion of the state sector, and stringent export and import controls. They were basically what JR advocated in 1939 as a member of the Ceylon National Congress and during 1947-53 as Finance Minister.

[16] Central Bank of Ceylon, Annual Report for 1954, Colombo.

[17] De Silva, K.M. & Wriggins, H., op.cit.

[18] A detailed analysis of arguments presented by John Exter for the establishment of a central bank abolishing the currency board can be found in Wijewardena, W.A. (2007), Central Banking Nearly Six Decades After John Exter, CBSL Occasional Paper No.62.

[19] Ceylon Daily News, 29 Aug 1950.

[20] De Silva, K.M. and Wriggins, Howard, op.cit. p 209.

[21] See: (Accessed on 31 May 2022). [Retrieved from].

[22] See: (Accessed on 31 May 2022). [Retrieved from].

[23] Swee, G.K. (1992), Why a Currency Board? Prudence at the Helm, Board of Commissioners of Currency of Singapore, Singapore.
[24] See: (Accessed on 31 May 2022). [Retrieved from].
[25] See: (Accessed on 1 June 2022). [Retrieved from].
[26] See: (Accessed on 1 June 2022). [Retrieved from].
[27] Hanke, S. (2021), Hanke's Inflation Dashboard: Official Statistics Misrepresent Real Inflation Rates, CATO Institute, (Available at:) (Accessed on 1 June 2022). [Retrieved from].
[28] Hanke, S.H., & Bushnell, C. (2017). On Measuring Hyperinflation: Venezuela's Episode, *World Economics*, Vol 18, July-Sep 2017. Accessed on 1 June 2022. [Retrieved from].
[29] Cassel, G. (1916). The Present Situation of the Foreign Exchanges', Economic Journal, Vol.26, pp.62-5
[30] Balassa, B. (1964). The Purchasing Power Parity Doctrine: A Reappraisal', *Journal of Political Economy*, Vol.72, pp.584-96.
[31] IMF, Sri Lanka: 2021 Article IV Consultation Report, pp 1-2. Accessed on 1 June 2022. [Retrieved from].
[32] See: Accessed on 1 June 2022. [Retrieved from].
[33] Ponsot, J.-F. (2002). Keynes and the "National Emission Caisse" of North Russia: 1918-1920. *History of Political Economy*, Vol.38. Accessed on 1 June 2022. [Retrieved from].
[34] See: Accessed on 1 June 2022. [Retrieved from].
[35] Accessed on 1 June 2022. [Retrieved from].
[36] For details, see, Wijewardena, W.A. (2016), Central Banking: Challenges and Prospects, BMS Publications, Colombo, p.190.
[37] Grove, David L and Exter, John, (1948), 'The Philippine Central Bank Act, Federal Reserve Bulletin, August 1948, pp.938-949.
[38] Ibid, p.949.
[39] Report of the Establishment of a Central Bank for Ceylon, Sessional Paper XIV of 1949, Government of Ceylon, Colombo, p.27.

3 The Burma currency board

Alexandra *Diehl*

Introduction

The modern monetary history of Burma (Myanmar) begins in the late 1880s, when Burma became part of the monetary system of British India. Burma used Indian currency until World War II. Then, during the war period, Japanese occupation forces took control of Burma's monetary system, issuing hastily designed notes at a breakneck pace. War left Burma in monetary shambles with multiple currencies in circulation and soaring inflation. Before leaving Burma, the British attempted to stabilize the system. They established a currency board, which operated from 1948 to 1952. The Burma Currency Board (BCB) is the focus of this study.

As this brief summary shows, Burma's credit timeline has been punctured by internal strife and foreign intervention. From 1930 to 1942, the Burma Provincial Banking Enquiry (BPBE), a committee of British appointed bank officials, was staffed with the responsibility of overseeing the Empire's colonial holding in Burma. In 1935, the Reserve Bank of India (RBI) took over management of the Burmese monetary system, and the Burmese rupee (issued by the RBI) joined the existing

paper currency (Old Burma Notes). Old Burma Notes were widely circulated, facilitating monetary transactions from large-scale exports of rice to daily purchases. When the British resumed control of Burma after the war, the BPBE issued British Military Administration notes (BMA notes) to be used by colonial officers but circulated among Burmese nationals as well—adding a third currency to the pool.

In the second half of the 20th century, control of Burma bounced from one military regime to the next. In the 1950s, many economists agreed that Burma held the potential to transition into an economic power. Instead, the country has remained a backwater—one of the least financially developed countries in South East Asia. In 1950, Burma was in a similar position to many other East Asian countries—an export-oriented country dependent on foreign demand for its natural resources. Unlike the "Asian Tigers" and China, the "Rice Bowl of Asia" never grew out of this mold. A large part of Burma's financial stagnation can be attributed to currency debasement that occurred under military rule, which sapped confidence in long-term financing.

Before analyzing the BCB during its years of operation, we examine Burmese financial history both before and during World War II, since British colonization and Japanese occupation had lasting affects on the financial system of Burma.

Colonial Burma

After the Third Anglo-Burmese War in 1885, Burma became a part of the monetary and financial system of British India. India was on a silver standard until 1893, when the currency floated as a transitional measure to prepare for a gold-exchange system that began in 1898. The Indian rupee was convertible into the pound sterling, which was convertible into gold. The rupee-sterling exchange rate established in 1898 was 15 rupees (Rs.) to £1. That rate persisted until 1917, when the Indian government abandoned it under the financial pressures of World War I. A decade later, India officially re-established a

link to sterling, at 13-1/3 rupees to £1.[1] The new rate lasted until 1966, long after Burma split from the Indian monetary system. Burma used coins issued by the Indian Mint and notes issued by the Indian Paper Currency Department, a part of the Indian Finance Department (Weintraub & Schuler, 2013). Before British rule, Burma's currency unit had been called the kyat, and it had been equivalent to the rupee, so the introduction of the rupee caused no major disruption.

Before independence and while Burma was still a part of British India, the BPBE considered creating an independent central bank for the Burmese. Since half of the BPBE membership was Burmese (the other half consisting of Indian and British officials), the Enquiry was exposed to a significant degree of Burmese nationalism. To Burmese nationalists, the establishment of a central bank would have been the first step toward economic independence. There were also secular arguments made in support of the proposal. Since its establishment, paper currency had always been more popular in Burma than in British India. However, there was and had been an enduring problem with supply. Supply of credit in Burma was limited given historically high interest rates, partly due to the dominance of the agricultural sector, which led to seasonal demand for credit. In their 1930 report, the Enquiry referred to the credit crunch as Burma's "essential problem," and proposed the solution of establishing a central bank. The report suggested that Burmese agriculture, industry, and trade would benefit from greater access to credit at lower interest rates. While the premise itself was not challenged, there were underlying concerns that stood in the way of the proposal, voiced by the non-Burmese members of the Enquiry. They said that the Burmese economy was "too small' and Burmese officials were too inexperienced to support an independent central bank (Turnell, 2009).

The Finance Secretary to Burma's colonial government, Thomas Lister, came up with a pragmatic alternative, calling for a Burma to maintain the rupee as its currency but to

[1] 13-1/3 is the exchange rate used in this paper's corresponding workbook calculations

establish its own commercially active issue department. In this way, the credit crunch could be alleviated without placing too much monetary responsibility on the Burmese—in other words, while still holding Burma on the British Empire's economic leash.

From 1931 to 1932, there was discussion over Lister's proposal. Many officials in Calcutta as well as London voiced concern over Burma's ability to make sound monetary judgments. They worried that Burma would overinflate the rupee proving detrimental to financial stability in both regions. To Lister's chagrin, both the Indian and Imperial Governments proved adamant in their rejection of his idea. In March, the idea was put to rest with finality, during a meeting in London with Sir Louis Kershaw, the Under Secretary of State at the India office, who led the opposition. Kershaw was consistent in his support against a central bank. It is ironic that just over a decade later, he would lead the front in establishing a currency board for newly independent Burma.

The Reserve Bank of India

In 1935, the Reserve Bank of India (RBI) was formed and served as the central bank for British India, which at the time included what are now India, Pakistan, Bangladesh, and Myanmar. The RBI was divided into two departments: Issue and Banking. The Issue Department issued notes and managed their reserve backing. The backing was to consist of no less than 40 percent gold and sterling-denominated securities, but exhibited a certain extent of elasticity, since up to 25 percent could consist of rupee-denominated securities. This elastic component, along with direct loaning to provisional governments and credit cooperatives, allowed for monetary "accommodation" during the early years of the bank. The bank rate could be set to discount rupee-denominated securities and bills of exchange (Turnell, 2007). The bank forestalled earlier talk of creating an independent financial system for Burma, but it was not a permanent solution. With its establishment as a private share-holder's bank, Rangoon was given 3 million rupees out of the 50 million rupees distributed throughout

British India, and even this small percentage began to fall almost immediately after its issuance as shares began "migrating to the Bombay Registrar." The migration occurred as a natural progression, as larger shareholders in India accumulated more shares, consolidating the issuance (Wai, 1953). The empire's funding distribution illustrated where Burma stood in the hierarchy of British South Asia. The following migration of shares illustrated its lack of mobility and solidified its position as a lesser colony, at least financially.

Separation from India

In April 1937, with the implementation of the *Government of Burma Act* (1935), Burma separated from British India. While politically separated, Burma was still tied to India financially, as it continued to operate under the Reserve Bank of India. In other words, Burmese officials were still being pulled by Indian (and ultimately British) purse strings. As part of the Act, the RBI was commanded to produce separate bank notes for Burma. This gave the appearance of an independent system—but, in actuality, it was little more than an illusion of monetary liberation that forestalled actual progress. In 1938, the new notes were issued as "Burmese rupees." Instead of providing separate reserve backing for the new issuance, a joint consolidated reserve was formed to back both Indian and Burmese rupees (Turnell, 2009). While legal codes prevented Burmese rupees from circulating outside of Burma, Indian rupees still circulated in both countries. This disparity resulted in a loss of seigniorage rights for Burma. Additionally, there was a prolonged period of capital flight, as rupees from Burma ended up in Indian banks, given the majority of business and trade transactions were facilitated by Indian merchants and bankers (evidenced by the migration of funding shares, see Table 1). As a result, the Burmese banking system was undercapitalized at an extreme disadvantage to the Indian system. The colonial system cemented Burmese dependence precisely at the time Burma most needed to establish a sound financial footing. In a sense, Burma's preparation for independence was systematically handicapped. The colony

remained financially reliant on India, very much a part of the British Leviathan (Furnivall, 1939).

Table 1. *Holdings of Reserve Bank of India Shares in Selected Centers*

	Rangoon Circle: Burma Area		Total for India and Burma
Year	Shares	Shareholders	Shareholders
1935	30,000	3,157	92,047
1936	20,208	1,914	66,273
1937	19,196	1,767	62,570
1938	18,427	1,603	59,777
1939	18,425	1,490	57,192
1940	18,502	1,436	56,057

Source: *Report on Currency and Finance* for years 1935/36 till 1940/41 statements on "Distribution of shares" and sections of "Annual accounts of the Reserve Bank of India." Accessed through Tun Wai (1953).

Japanese Occupation

Burma remained financially stunted for the next five years as the operation of the British Empire continued—business as usual. With the start of World War II, control simply shifted from one foreign power to another. On March 7, 1942, Burma became part of Japan's imperial empire. As in other conquered territories, the Japanese issued a military currency (also called rupees but referred to as kyat in Burmese). The notes were issued by the Yokohama Specie Bank, which opened in August 1942 and acted as a de facto central bank for Japan's southern territories (Min, 2012). While old Burma rupees were still allowed to circulate, their use was discouraged.

Although the Japanese were considered liberators upon arrival, their wartime behavior soon lost favor among the Burmese public. Even the nature of the currency itself was problematic. Japanese Military (JM) rupees were printed with cheap ink on cheap paper and featured the design of a pagoda, which offended many religious Burmese who saw printing of the symbol as sacrilegious. One JM rupee was nominally equal to one yen as to facilitate trade in the "Co-Prosperity Sphere" that Japan sought to create throughout Asia. There was however, very little prosperity in this sphere, which acted

primarily as a drain to funnel resources from conquered areas to the Japanese military operation.

The Japanese military facilitated the expansion of Japanese commercial enterprises into Burma for the remainder of the war. Large Japanese conglomerates *(zaibatsu)* set up branches in Burma, monopolizing industry and dominating the local economy. Smaller Burmese companies were unable to compete with the likes of Mitsui or Mitsubishi. Burmese companies were also disadvantaged by Japanese disregard for price controls. While local companies were constrained by wartime rationing, branches of Japanese companies were exempt from government controls. In this way, "Burma's raw materials and products were being transferred to the Japanese firms in exchange for the brightly colored paper issued by 'The Japanese Government'" (Bányai 1974, 85). Again, financial development in Burma was sacrificed in favor of its colonizer.

Postwar Burma

In early 1945, British and Allied forces retook Burma. Much of Burma's infrastructure and economic capacity had been lost in the war. Further deepening the postwar malaise, the monetary system proved to be severely damaged. Inflation rates skyrocketed as a result of accelerated Japanese money printing late in the war. This reckless printing left the military currency worth so little that a local industry had developed making children's hats from the excess notes (Turnell, 2009). The British decided that the only way to move forward was to demonetize the notes in 1946, which set a precedent for treatment of Japanese wartime currencies in Asia. An estimated 30 million rupees of JM notes were demonetized (Wai, 1953).

Demonetization entails short-term losses to stabilize long-term inflation rates. However, as Donnison (1956) suggests in his official history of British military administration in the Far East, inflation and poverty limited the damage—"the poorer people, particularly in villages, turned over such cash as came into their hands so quickly that their balances of Japanese currency at any given time were unlikely to represent more than a very small proportion of their wealth." However, many

companies, especially those engaged in moneylending against gold-denominated mortgages, were left holding the worthless currency. Additionally, established agricultural credit lenders such as the Chettiars (a Hindu caste specializing in land owning and trade) and Dawson's Bank (one of the two major Burmese banks of the colonial era) never recovered from the demonetization (Wai, 1953).

On August 20, 1945, the Reserve Bank of India re-opened in Rangoon, and the British Military Administration (BMA) took over control of the currency in circulation, which included Indian notes, pre-war "Old Burma" notes, and its own BMA notes.

Control of currency passed to the Burmese parliament with the termination of the British Military Administration in 1947. By the *Currency Notes Act* (1946), the Burmese government continued to issue BMA notes. Continued issuance was only possible because the British had left many printed but unissued notes behind. The Burmese rupee continued to be linked to Indian rupee at 1:1 through the Reserve Bank of India. However, by the *Burma Notes Act* (1947) and the *Exchange of High Denomination Burma Notes Rules* (1946), the larger denominations of Old Burma notes, Rs. 1,000 and Rs. 10,000, were demonetized (Wai, 1953). Demonetization of the rupee-linked notes was indicative of the government's economic agenda. It was the first step toward breaking off ties with India and establishing an independent monetary authority.

The Republic

On the January 4, 1948, Burma formally gained independence from Britain. Between the end of Japanese occupation and independence, the country had been governed by an interim body, the Governor's Executive Council. The council had been constituted of primarily Burmese officials, but had operated under British authority (Indian Affairs London, 1947). Prominent council member and independence leader Aung San (father of the current prominent democratic leader Aung San Suu Kyi), after having spent decades uniting the many ethnic and linguistic regions of Burma, had finally

brokered a peaceful agreement with the British and established a constitution in 1947. However less than six months before independence, he was assassinated when an opposition group armed with machine guns burst into his cabinet meeting. As a result, Burma was left in the hands of U Nu, Deputy Chairman of Aung San's AFPFL (Anti Fascist Peoples' Freedom League), who struggled to unite the country as conflict reemerged along ethnic and political lines.

As Prime Minister, U Nu followed the late Aung San's plan to create a socialist state. He made attempts to nationalize agriculture and other major industries (Nu, 1952). Though constant civil unrest limited the government's ability to render these reforms, public announcements of proposed changes injected uncertainty into the business environment, further hampering economic development.

The Currency Board

In addition to transferring control of Burma over to U Nu's government, Bank of England advisers to the Governor's Executive Council (an interim government of Burmese politicians) took steps to facilitate economic transition. It was clear that the Burmese wanted their own currency—the BPBE had pushed for greater financial freedom long before political independence had been granted. However, there was a consensus among the Bank of England officials that Burma did not have a broad enough financial base to establish a central bank and therefore would have difficulty managing its own currency. The Bank's chief representative in Burma, Raymond Kershaw, who had been a member of the West African Currency Board (Meade, 1943), encouraged the Governor's Executive Council to adopt a similar model and in the 1948 fiscal year, the Burma Currency Board (BCB) was established. Since there were no AFPLF members on the council, the incoming AFPLF government had no voice in the matter, and was handed a monetary system along with independence.

With the currency board, the British attempted to restore some semblance of a monetary system in Burma. The tricky part was that there was no foundation to build on. Indeed,

existing systems of credit had been destroyed in the war and many goods that had been sold on credit were now being sold on a cash basis. In wholesale trade, importers were taking 25 percent deposits with orders instead of accepting credit as during prewar years (Wai, 1953). The purpose of the currency board was to create stability out of a broken system. Kershaw and other advisors saw the board as a way to unfreeze credit, promote investment, and provide some relief to Burma's strained economy.

Establishment of the BCB

In May 1946, the Governor's Executive Council made the formal decision to establish the BCB. The following meetings of the drafting committee were run by Kershaw, who led discussion on how to create the Burmese version of the West African Currency Board.

Like its model, the BCB was based in London, and location aligned with staffing structure. Indeed, one of the five members of the Board had to be nominated by the Governor of the Bank of England. The first governing board comprised Sir Richard Hopkins, the retired Permanent Secretary of the British Treasury (Chairman), U Kaung (Burmese representative), Saw Htin Lin Mya (Burmese representative), W. Johnston (representative of the British Secretary of State for Burma), and Raymond Kershaw (Bank of England). Sir Sydney Turner, a British bureaucrat formerly in the India Office, was the Secretary of the BCB, while U San Lin, a member of the Burma Civil Service, was the "Currency Officer" or head of the BCB in Rangoon. In August 1946, the formal drafting of the law establishing the BCB took place with Kershaw as the main author aided by U Tin Tut, a statesman and the future author of independent Burma's first constitution (Turnell, 2009). Tin Tut's presence illustrates that while British were at the helm of the board, there was a Burmese presence. Current advisor to the President of Myanmar historian Thant Myint-U has described Tin Tut as "the brightest Burmese official of his generation" (Myint-U, 2011).

Main features of the BCB

Established under the *Currency and Coinage Act* of 1946, the BCB formally came into operation on April 1, 1947 and managed an independent currency that had been established when in June 1946, the Government of Burma had severed its currency link to the Indian rupee (Wai, 1953).

Under Section 10 of the *Currency and Coinage Act,* the Burmese rupee was designated as the official currency of Burma and was divided into 16 annas, like the Indian rupee. The rupee was fixed against the pound sterling at a rate of 1 shilling 6 pence per rupee, or 13-1/3 rupees per pound, again like the Indian rupee. Notes were allowed to be issued in denominations of 1, 5, 10, and 100 rupees. Burma initially continued to use Indian coins, but in 1949, coins of half a rupee, one-quarter rupee, an anna and half an anna were developed, and they began to be issued on July 20, 1950 (BCB Annual Report, 1950). Under Section 15 of the Act, conversion of Burmese rupees into sterling was guaranteed at the settled exchange rate. To back the issuance, the British government transferred sterling assets of £31.3 million into the BCB fund. They were not readily convertible into currencies not linked to sterling. The redemption date was postponed year after year until the British liability was met at £3.3 million in the final year of the board's operation (BCB Annual Report, 1948).

BMA notes still circulated and needed to be dealt with. Burma could not simply demonetize the notes as it had done with the JM rupees, because the BMA notes had been issued by Britain. Neither did Burma have enough foreign reserves to back them. This problem was faced by Raymond Kershaw, who decided to depart from orthodoxy and include a fiduciary element to the BCB; namely, what was called element "Y" to back the Old Burma notes. Under Section 25 of the *Currency and Coinage Act*, a fiduciary issue (element "Y") of 10 crores (100 million) Burmese rupees was created to cover the "outstanding issues of Old Burma and BMA notes." This issue allowed for the holding of domestic assets as a portion of the Board's initial reserves and for this portion to be lessened over time (Turnell, 2009). Though a figure was never explicitly stated, the Board's

first annual report implied a minimum sterling cover for the Burmese rupee by estimating that the fiduciary component would not exceed 20 percent of the note issue (BCB Annual Report, 1948).

By the 1948 BCB estimates, there were 88,804,360 Rs. of BMA notes and 9,128,786 Rs. of Old Burma notes in circulation, which, combined with an issuance of 237,633,844 Rs. in BCB notes, gave a total of 335,566,844 Rs. notes in circulation (BCB Annual Report, 1948). The BMA notes were easily redeemed through element "Y" since there were a known quantity in circulation. The Old Burma notes, on the other hand, proved more difficult to redeem given that the original BCB approximation of Rs. 9.1 million severely underestimated the actual magnitude and needed to be revised, as shown in subsequent BCB annual reports. The miscalculations were so severe that in 1950, the Burmese government threatened to demonetize all remaining notes, but was convinced to back down by BCB Chairman Sydney Turner. By 1952, the total number of Old Burma notes redeemed was Rs. 38,345,750, over 420 percent of the 1948 estimate. This implies the reserve backing of currency in circulation was rather less than the official estimates (BCB Annual Reports, 1948-1952).

The reserve backing had two primary components listed under assets on the BCB annual balance sheets: investments at mean market price and UK Treasury bills at cost price. Investments composed of 2.5% British National War Bonds for the first couple of years and then diversified to also include 2.5% British Exchequer bonds for the last several years. Over its four year span, the BCB's assets changed in composition. While the investment component remained steady at around £10.5 million until 1952, the share of British Treasury bills grew from around £5 million to more than three times that amount at over £16 million in 1952 (BCB Annual Reports, 1948-1952).

End of the BCB and rise of central banking, 1952

The BCB officially ended on December 31, 1952. In March of that year, the Parliament had passed an act transferring all functions of the board, as well as its assets and liabilities, to the

Union Bank of Burma. The motivations behind this decision were political as Burma began its transition to a socialist system with the implementation of the Pyidawtha Plan (Turnell, 2009). The ambitious eight-year plan, intended to move Burma towards being an industrialized welfare state, set unachievable goals and largely resulted in failure. Unpredictable tariffs and regulations inserted uncertainty into the economy and fueled price volatility reversing the successes of the currency board era.

Criticism of the BCB

Although Burmese government officials may not have been aware of it, their thinking in replacing the BCB paralleled that of John Maynard Keynes. In 1945, the year before his death, Keynes commented on the possibility of establishing a currency board in Burma after the end of Japanese occupation:

> The existing system of our Currency Boards is ... so frantically out of date and, indeed, unreasonable from the point of view of anyone's interests but our own, that there is not the smallest chance of inducing any self-governing country to hold it. The notion that a country can only expand its domestic purchasing power when it is in a position to cover the increase 100 per cent with foreign resources, belongs I am convinced, to an era of thought that can never return (Keynes in Helleiner, 225-226).

Keynes was clearly voicing his disapproval of not only Burma's board but the concept of currency boards and the British practice of establishing them in transitional colonies. To him, they were financial exploitation—a continuation of economic colonialism. Keynes found the 100 percent target backing far too restrictive and was in favor of fiduciary issuances. Put simply, he felt that there was not enough being done to promote economic development. He was not alone in this opinion. Despite the coalescence of top Burmese officials around the BCB, homegrown criticism existed broadly and was spurred by nationalistic fervor. Burmese nationalists riled against the system, based in Britain and largely operated by their colonizers. Indicative of this dissent was a 1948 draft

proposal submitted to the newly established parliament that called for the transfer of funds to the Union Bank of Burma, a government bank (Turnell, 2009). Scholars also voiced concern. Aligning with Keynes, U Tun Wai, perhaps Burma's most prominent local economist, was concerned about the rigidity of the system. He wrote that unless stronger intermediary institutions were established "then the monetary authority responsible for issuing the currency notes should be given the right to issue notes in an elastic manner and not be tied down to some rigid base of gold or anything as advocated by the 'Currency School'" (Wai, 1953).

A contrary view might start from the often-quoted dictum of Dr. Karl Schiller, West Germany's Economics Minister between 1966 and 1972, that "Stability is not everything, but without stability, everything is nothing" (quoted in Marsh 1992, 30). Under the BCB, there was steady monetary progress. As illustrated by the tests discussed below, fiscal discipline imposed by the BCB led to budget surpluses and stabilized prices, whereas Burma's experience under central banking has been one of frequent instability.

Orthodox currency boards

Orthodox currency boards issue notes and coins convertible on demand into a foreign anchor currency at a fixed rate of exchange. As reserves, they hold foreign assets equal to or even slightly greater than their monetary liabilities. In this way, currency boards eliminate monetary policy and operate automatically. A currency board is not allowed to alter the exchange rate, and market forces determine the quantity of the domestic currency in circulation and the demand for domestic currency (Hanke & Schuler, 2005).

The argument for a currency board rested in part on fears about Burma's politics that were later realized. As control of the country bounced from one military presence to another, concerns of the economy were sidelined in political struggles. Indeed, Burma's political history illustrates the tendency of the military governments to revert to money financing, sacrificing the legitimacy of the country's monetary authority. Since

orthodox currency boards promote economic stability by applying fiscal discipline, the idea of a currency board remains potentially relevant today. A currency board could be expected to facilitate significant monetary reform even with the political delay on economic reform.

How Orthodox was the BCB? The Data and Our Tests

We digitized annual balance sheet data on the BCB from 1948 to 1952. The main sources of data were the Burma Currency Board annual and quarterly reports. See the spreadsheet workbook accompanying this paper for digitized data.

We performed three tests on the balance sheets to determine the level of orthodoxy exhibited by the BCB during its years of operation.

Test One: Domestic assets, foreign assets, and the monetary base (graphs on next page)

We first measured net foreign assets as a share of the monetary base, in Figure 1. From 1948 to 1952, net foreign assets grew from approximately 55 to 75 percent of currency notes in circulation. Net domestic assets fell from around 45 to 25 percent. Total assets ranged from approximately 70 to nearly 80 percent of the monetary base.

As we can see from the upward trend beginning 1950, the BCB moved closer to orthodoxy during its span. However, it ultimately fell short of the 100 percent mark. Under an orthodox currency board arrangement, reserves of the anchor currency (sterling) have to at least cover 100 percent of the monetary base. Burma's financial situation complicated this arrangement through the fiduciary issue of element "Y".

Accordingly, domestic asset ratios trended downward during the currency board era, though never falling lower than 15 percent. Asset ratios are indicative of the change in composition of reserves, illustrating the transition to a greater percentage of sterling securities.

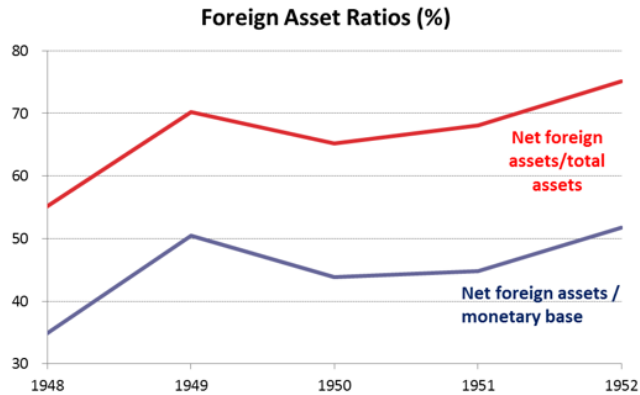


Figure 1. *Foreign asset ratios indicate the degree of currency board orthodoxy. Orthodox currency boards exhibit ratios of close to 100 percent.*
Main sources: Burma Annual Reports 1948-1952; calculations.

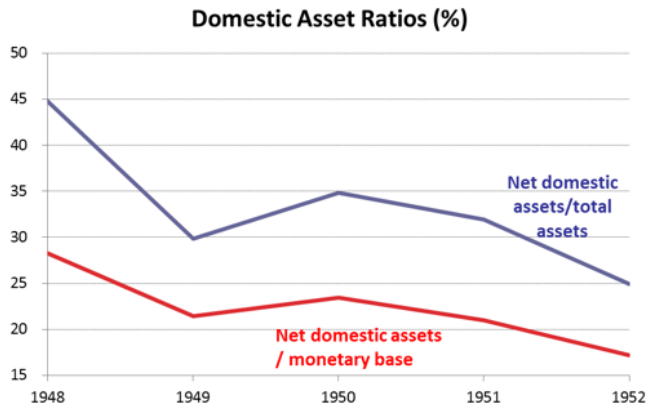


Figure 2. *Domestic asset ratios indicate the degree of currency board orthodoxy. Orthodox currency boards exhibit ratios close to zero.*
Main sources: Burma Annual Reports 1948-1952; calculations.

Test Two: Reserve pass-through

The second test we conduct is the "reserve pass-through," which measures year-over-year change in the monetary base divided by year-over-year change in net foreign reserves. By measuring on a year-over-year basis, the confounding effect of seasonal changes and one-time financial events is limited.

An orthodox currency board has a reserve pass-through rate that is "close to 100 percent" but in practice, "within a range of 80 to 120 percent" (Hanke 2008, 280). A reserve pass-through of 100 percent means that if net foreign reserves rise (or fall) by a certain amount, then the Burmese monetary base should also rise (or fall) by that same amount (Hanke, 2008).

During its years of operation, the BCB had a reserve ratio that fluctuated around 100 percent orthodoxy with a deviation in 1951 of 167 percent. From 1950 to 1951, money supply increased by a greater magnitude than foreign assets due to the acceptance of loans from the British government. These loans were to be used facilitate the monetary transition (Burma Annual Report, 1951).

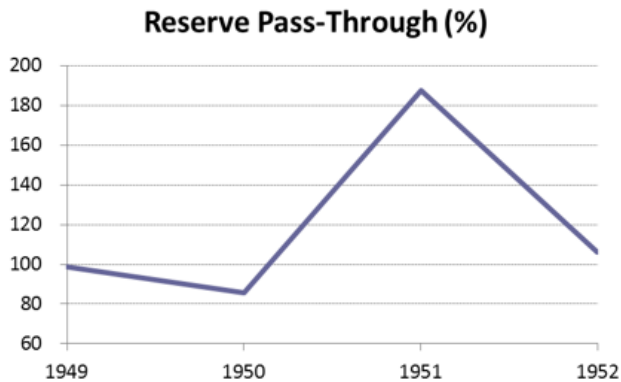


Figure 3. *The reserve pass-through ratio measures year-over-year change in the monetary base over year-over-year change in net foreign reserves. Orthodox currency boards exhibit ratios close to 100 percent because any change in the money supply is accounted for by changes in foreign reserves.*
Main sources: Burma Annual Reports 1948-1952; calculations. *1948 is not shown because there was no prior year for a year-over-year calculation.

Test Three: Changes in monetary base and net foreign assets

We also measured annual changes in the monetary base and changes in net foreign assets, in Figure 4 below. A strong correlation between the two metrics means that when net foreign reserves rise or fall by a certain amount, the monetary

base should also rise or fall by that same amount (Hanke, 2008).

We observe a close correlation between changes in notes in circulation and changes in foreign reserves. From 1949 to 1952, there is a strong correlation between changes in the monetary base and changes in net foreign assets. Deviations occurred when the effects of an increase in the money supply were offset by the liberalization of private imports and the sale of foreign exchange to the private sector, which reduced the money supply and excess demand (Thein, 2004). The deviation of the sharp downturn in 1951 may indicate some level of unorthodoxy.

Even as a well-known critic of the BCB, U Tun Wai also wrote: if Burma did succeed in opening up the economy, then "seasonal inflow and outflow of foreign short-term capital" would act as an elastic margin and provide surplus needed to increase employment and grow the economy (Wai, 1953). As illustrated through the following tests, the fiscal discipline imposed by the BCB led to a budget surplus and stabilized prices, fulfilling Tun Wai's requirements for an elastic margin and fueling growth even without rapid development of the banking system

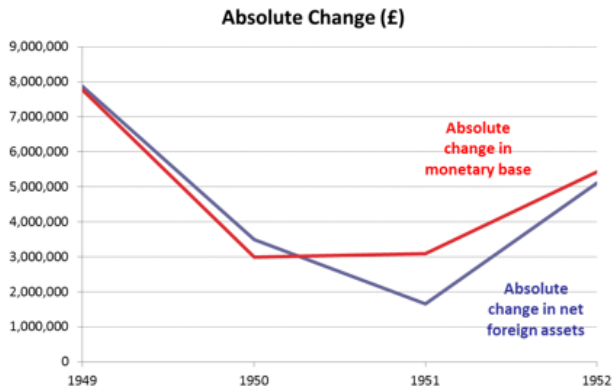


Figure 4. *Absolute changes in monetary base and net foreign assets provide another measure of currency board orthodoxy. In orthodox currency boards they are close, because changes in the monetary base are financed by changes in foreign reserves.*

Main sources: Burma Annual Reports 1948-1952; calculations. *1948 is not shown since there was no prior year for a year-over-year calculation.

Fiscal statistics, external trade, price level, and bank deposits

Beyond the three tests that measure currency board orthodoxy, we also analyze budgetary statistics, external trade statistics, and reports on price level. Countries that have adopted currency boards tend to have respectable growth rates, price stability, and fiscal discipline (Hanke, 2002). Burma's government budget moved from deficit to surplus from 1948 to 1952. This may indicate a high level of fiscal discipline during the currency board years. However, on the revenue side, the government benefited from the price differential between the world price of rice and the lower domestic price fixed by the State Agricultural Marketing Board. On the expenditure side, a low level of developmental expenditures maintained low overall expenditures (Thein, 2004).

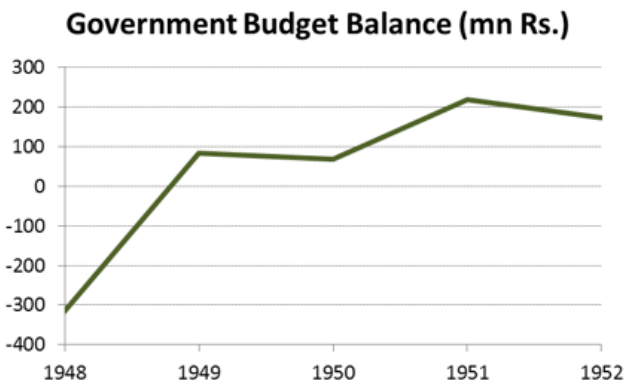


Figure 5. *During the currency board era, Burma went from a 300+ million rupee budget deficit in 1948 to a sizable budget surplus.*
Main source: IMF data

We also looked at Burma's external trade balance before, after, and during its currency board era. Between 1948 and 1956, Burma had an annual average trade surplus of over US$50 million, but since then it has been in decline due to the

declining value of exports caused by trends in commodity prices. (See next page.)

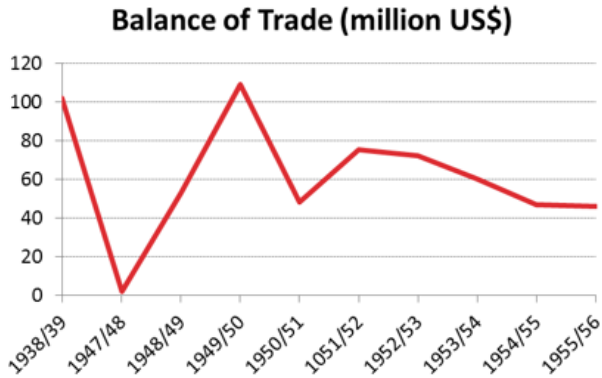


Figure 6. *A major improvement in the balance of trade occurred at the beginning of the currency board era in 1948.*
Main sources: IMF and World Bank data.

We performed another test, examining the stability of the consumer price index (CPI). The CPI begins to level out toward the end of the currency board era due to the stabilization of the money supply. The relative price stability during the period before 1955/56 is due primarily to the liberalization of private imports (Thein, 2004).

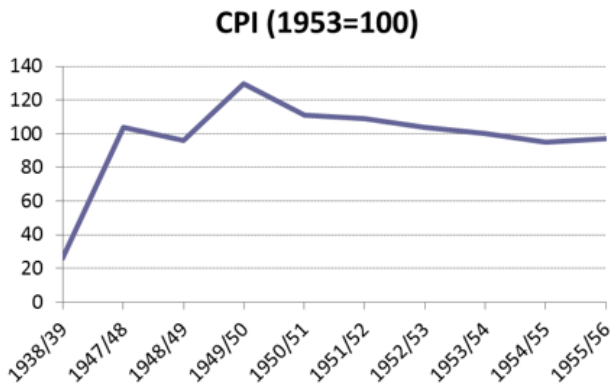


Figure 7. *Burma's price level stabilized beginning around 1951.*
Main sources: Economic Survey of Burma.

The final test we performed charts the ratio of Union Bank of Burma deposits to currency in circulation. The steadily increasing ratio indicates development of the banking system. The volatility is explained by the cyclical variations of an export-based economy with the peaks corresponding to credit expansion during harvest season (Thein, 2004). In this way, the financial stability of the currency board era stimulated the growth of indigenous banking, effectively filling the gap left by the dispersion of foreign credit-lenders in the years following Japanese occupation.

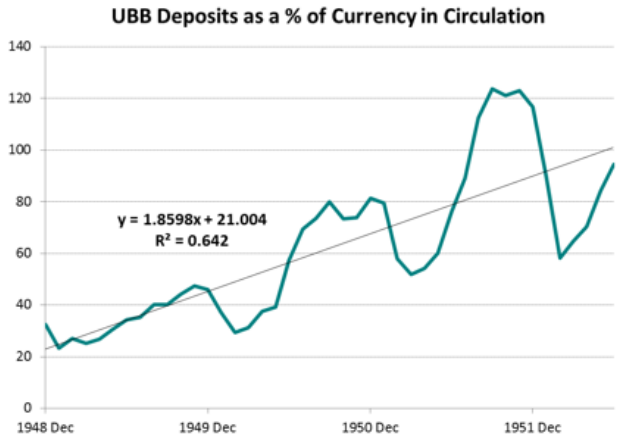


Figure 8. *During the currency board era, the level of bank deposits grew steadily, indicating the development of the Burmese banking system.*
Main sources: Burma Quarterly Bulletin of Statistics.

Burma under central banking

The Union Bank of Burma (UBB) had been established on October 1, 1947 under the *Union Bank of Burma Act*. Though it did not issue notes while the currency board was in place, the bank handled the distribution of notes and the foreign exchange activities of the government beyond those pertaining to the sterling backing of the currency. It acted as the government's banker, lending to the government with the provision that such advances had to be short-term and repayable within 90 days.

With the currency board ended, on July 1, 1952, the *Union Bank of Burma Act* (1952) conferred to the UBB the "powers and duties appropriate to a central bank with a view to strengthening the monetary and banking system of the Union of Burma and stimulating the sound growth of indigenous banking." These powers included accepting deposits from both the public and private spheres, acting as a lender of resort to commercial banks, lending to the government, conducting monetary policy through the buying and selling of government securities, managing the fixed exchange rate to the sterling, and smoothing monetary conditions against seasonal variations in bank lending (Wai, 1953). In addition to its powers, the bank had three main responsibilities outlined in Section 4 of the Act, which included (1) monetary stability in the Union of Burma, (2) stability of the currency in relation to foreign currencies and (3) development of the productive resources of the country and a rising level of real income (Turnell, 2009).

The charts below show data of Burma (Myanmar) since 1960 concerning inflation levels and the exchange rate of the Burmese kyat against the U.S. dollar (the official or de facto reference currency). The charts illustrate that the performance of these indicators has been markedly worse under central banking than it was under the BCB. The differences are not entirely attributable to central banking: central banking in the form existing in Burma was part of a larger trend toward socialist economic institutions, a trend that has been partly reversed since the collapse of the Soviet bloc from 1989 to 1991. Even so, the differences between the indicators under the BCB and under central banking suggest why a currency board may be worth reconsidering in Myanmar today.

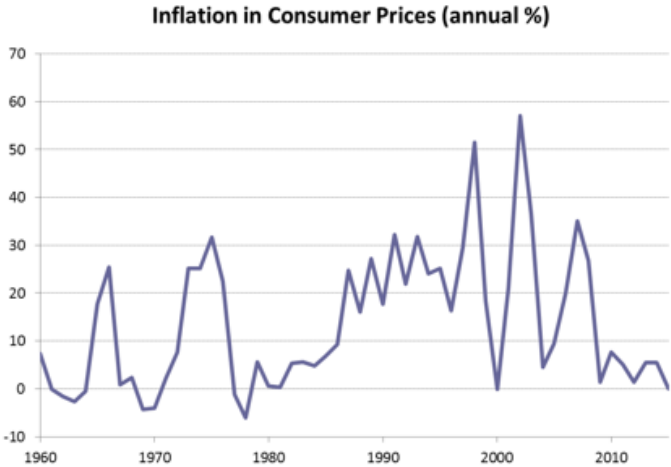


Figure 9. *This chart shows inflation in the consumer price level from 1960 to 2014. Burma (Myanmar) has experienced much greater price volatility under central banking than under the currency board.*
Main source: IMF International Financial Statistics

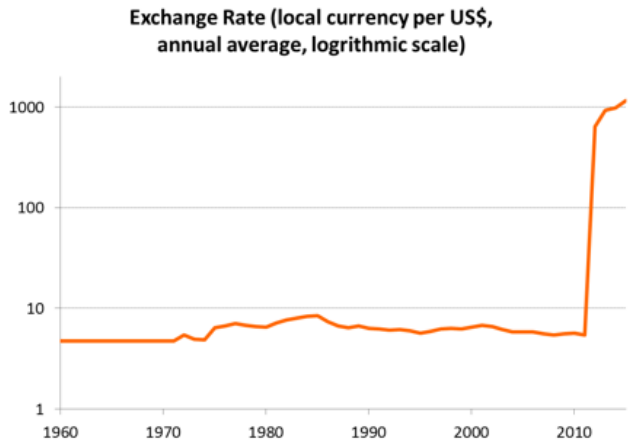


Figure 10. *Note the rapid depreciation of the Burmese kyat after the government decided to float the currency in 2012. The apparent stability of the exchange rate before 2012 was in part illusory, typically supported by extensive exchange controls.*

Conclusions

In establishing its monetary system after World War II, Burma needed to contend with the monetary legacy left by its period of Japanese occupation and decades of colonization before that. Emerging as a lopsided export economy dependent on the production of rice patty, Burma needed to establish a monetary system that would work toward stabilizing price levels and promoting development. The Burma Currency Board, though unorthodox in its reserve ratios, prevented the government from financing itself through inflation, imposing budgetary discipline that led to a budget surplus and eventually led toward the stabilization of price levels. It is worth considering whether a currency board would similarly helpful in Myanmar's current circunstances.

References

Bányai, R.A. (1974). *Money and Banking in China and Southeast Asia during the Japanese Military Occupation 1937-1945*. Taipei: Tai Wan Enterprises Co.

Bolt, J., & van Zanden, J.L. (2014). The Maddison Project: Collaborative research on historical national accounts. *Economic History Review,* 67(3), 627–651. doi. 10.1111/1468-0289.12032

Burma Currency Board. Annual report. (1947/1948-1951/1952). *Report of the Burma Currency Board for the Period 1st April, 1947, to 30th September, 1948* (1947/1948); *Report of the Burma Currency Board for the Year Ended 30th September, …* (1948/1949-1950/1951); *Report of the Burma Currency Board for the Period 1st October, 1951, to 30th June, 1952*. Rangoon: Burma Currency Board.

Burma. Central Statistical and Economics Department. *Quarterly Bulletin of Statistics*. 1951 Q1-1952 Q3. Rangoon: Chief Controller, Central Press.

Donnison, F.S.V. (1956). *British Military Administration in the Far East, 1943-46*. London: Her Majesty's Stationery Office.

Furnivall, J.S., & Wijeyewardene, G. (1991). *The Fashioning of Leviathan : the Beginnings of British Rule In Burma*. Canberra: Published in association with the Economic History of Southeast Asia Project and the Thai-Yunnan Project.

Hanke, S.H. (2002). Currency Boards. *Annals of the American Academy of Political and Social Science,* 579, 87-106.

Hanke, S.H. (2008). Friedman: Float or Fix?. *Cato Journal,* 28(2), 275-285.

Hanke, S.H., & Schuler, K. (1994). *Currency Boards for Developing Countries: A Handbook*. San Francisco, Calif.: ICS Press. Revised 2015 electronic version at. viewed April 3, 2016. [Retrieved from].

Helleiner, E. (2014). *Forgotten Foundations of Bretton Woods: International Development and the Making of the Postwar Order*. Ithaca, New York: Cornell University Press.

International Monetary Fund (IMF). *International Financial Statistics*. Washington, D.C.: International Monetary Fund, various issues.

Khaṅ, U. (2000). *Economic Development of Burma: A Vision and a Strategy*. Stockholm, Sweden: Olof Palme International Center.

Krus, N., & Schuler, K. (2014). Currency board financial statements. Institute for Applied Economics, Global Health, and Study of Business Enterprise, Currency Board *Working Papers*, No.22. [Retrieved from].

Marsh, D. (1992). *The Bundesbank: The Bank that Rules Europe*. London: Mandarin Paperbacks.

Meade, J.E. Howson, S., & Moggridge, D.E. (1943). *The collected papers of James Meade. Vol. 4., The Cabinet Office Diary, 1944-46*. Unwin Hyman, London, 1990.

Min, M.S. (2017). Ch. IV Post Burma Independence." Banknotes of Burma. N.p., 07 Feb. 2012. Web. 27 Jan. 2017. [Retrieved from].

Myint-U, T. (2001). *The Making of Modern Burma.* Cambridge: Cambridge University Press.

Myint-U, T. (2011). *The River of Lost Footsteps: A Personal History of Burma*. London: Faber and Faber. Web.

Nu, U. (1952). "Towards a Welfare State." Speech of Prime Minister U Nu delivered on the opening day of the Union Welfare State Conference on August 4, 1952, Ministry of Information, Government of the Union of Burma.

Thein, M. (2004). *Economic Development of Myanmar*. Singapore: Institute of Southeast Asian Studies.

Tun, W.U. (1953-1962). *Burma's Currency and Credit,* 1st edition, 2nd edition. Bombay: Orient Longmans Limited.

Turnell, S.R. (2002). *Reforming the Banking System in Burma: A Survey of the Problems and Possibilities*. Technical Advisory Network at The Burma Fund.

Turnell, S.R. (2007). "The Elastic Margin: Central Banking Theory and Practice in Colonial Burma," paper presented at History of Economic Thought Society of Australia Conference, University of Queensland, St. Lucia, Australia, July., viewed April 3, 2016. [Retrieved from].

Turnell, S.R. (2009). *Fiery Dragons: Banks, Moneylenders and Microfinance in Burma,* Copenhagen: NIAS Press.

Weintraub, C., & Schuler, K. (2013). "India's Paper Currency Department (1862-1935) as a Quasi Currency Board." Studies in Applied Economics no. 9, December, Johns Hopkins University Institute for Applied Economics, Global Health, and Study of Business Enterprise., viewed April 3, 2016. [Retrieved from].

World Bank. (1995). *World Bank Data Series, 1995*. New York: Oxford University Press.

World Bank. (2016). *World Development Indicators.* Washington, D.C.: World Bank. viewed May 2, 2016. [Retrieved from].

4 The Tongan board of commissioners of currency (1935-1989): Not an orthodox currency board

Cameron C. *Little*

Introduction

Before establishing its modern-day National Reserve Bank, Tonga had a Board of Commissioners of Currency from 1935 to 1989 and, in addition, a Board of Commissioners of Coinage from 1962 to 1989. There are few works concerning Tonga's exchange rate regime or monetary policy during this time; thus, the analysis here will rely mostly upon British colonial reports and Tongan government gazettes published during the aforementioned years. This chapter analyzes Tonga's currency board system based on statistical tests and examination of laws. The primary analysis uses data from the Commissioners of Currency/Coinage balance sheet, found in the colonial annual reports and gazettes.

The Tongan government first issued notes during 1919 (Tonga Annual Report, 1931: 20), but the statistical analysis in this paper will only start with 1933 because earlier data were unavailable. In addition, data are unavailable from 1941-1946, because of problems connected with World War II. The holistic analysis will technically begin in 1919, despite the Board of

Commissioners of Currency not being official established until 1935.

The focus of this chapter is to investigate the extent of the orthodoxy of the Tongan Board of Commissioners of Currency through statistical analysis and testing. The paper will touch on other aspects of the Tongan monetary system for purposes of reference rather than analysis. In addition, other researchers may find useful the data on the Tongan monetary system available in the accompanying spreadsheet workbook.

Origins

The Kingdom of Tonga is the southernmost archipelago among a group of islands in Polynesia. The kingdom is comprised of the primary islands of Tongatabu, Vavua, and Haabai, along with smaller islands. The first European to discover the primary islands was the Dutch navigator Abel Tasman in 1643. Then, 130 years later, the kingdom was visited by Captain James Cook, who deemed the archipelago "the Friendly Islands" due to the kind demeanor of the local people. In 1900, Tonga became a British protectorate. At the time, the great powers were carving out spheres of influence in the Pacific islands that they did not already own. Accepting British protection was likely the course that preserved the greatest local autonomy for Tonga. Britain took control of all subjects connected to the foreign relations of Tonga and exercised considerable though informal influence in local affairs. A British Agent and Consul were appointed to advise the Tongan government on financial matters.

As previously mentioned, the Tongan government first issued bank notes during 1919. I have not found the text of the act, but based on acts concerning note issuance in other British colonies and protectorates at the time, I suspect that the Tongan act left many points to administrative discretion and was less specific than the successor 1935 act discussed below. The reason for initially issuing Tongan notes is presently unknown, but it could have arisen both from a desire to capture seigniorage for the Tongan government and to provide an alternative to silver coins. A jump in the world market price of

silver made the metallic value of some silver coins greater than their face value, leading to the public withdrawing them from circulation and melting them. After first issuing notes, the Tongan government backed its notes with British and Australian denominated assets. Using British and Australian assets made sense, because the aforesaid countries' respective currencies had been recognized as legal tender in Tonga since 1906 (Tonga Annual Report, 1931: 20). When the notes were issued during 1919, the going exchange rates were Tongan £1 = £1 sterling = £1 Australian. In addition to having one-to-one exchange rates, Tonga used the same pounds-shilling-pence structure that Great Britain and Australia had, in which £1 = 20 shillings = 240 pence (Krus & Schuler, 2014: 233). Notes were issued for as little as 4 shillings, a denomination perhaps chosen because the value was close to 1 U.S. dollar and to the Spanish silver dollar from which the U.S. dollar had originated. Since the 1600s the Spanish silver dollar had been widely used in and around the Pacific.

During January 1926, the Government Savings Bank of Tonga was established (Tonga Annual Report, 1926: 4). The Government Savings Bank was the first bank in Tonga. It stored deposits and facilitated withdrawals for the Tongan people (Tonga Annual Report, 1927: 4). By the end of 1931, there were 403 Tongan depositors and 160 depositors from abroad, as well as £26,459 in credit of depositors (Tonga Annual Report, 1931: 19). The Tongan Government Savings Bank continued to grow, and by 1963, it had 9,413 total depositors with a total deposits of £248,467 (Tonga Annual Report, 1963). The first commercial bank established in Tonga was the Bank of Tonga, which was headquartered in Nuku'alofa, Tongatapu. This bank was founded during 1974 and was still the only commercial bank in Tonga by 1989, when the National Reserve Bank of Tonga replaced the Commissioners of Currency (Krus & Schuler, 2014: 234).

During 1935, the Treasury Notes Act was passed. The act officially established the Board of Commissioners of Currency (henceforth known as "the Board" or "Commissioners of Currency") (Treasury Notes Act, 1936). According to the Treasury Notes Act, the Commissioners of Currency would be

comprised of the Premier, Treasurer, and one other individual nominated by the Privy Council. Furthermore, the Board was to have an office in the capital city of Nuku'alofa, Tongatapu, like the Government Savings Bank. The office of the Commissioners of Currency was permitted to hire various officers, agents, and other workers as needed, pending the approval of the Privy Council.

The Treasury Notes Act gave the Commissioners of Currency the right to adjust the Tongan exchange rate system. Utilizing this ability, the Commissioners of Currency decided to fix the Tongan pound to the Australian pound (Tonga Annual Report, 1935: 22). The rationale for the act seems to have been that Tonga's economic ties to Australia were stronger than its ties to Britain. By this time, the Australian pound had been devalued against the pound sterling as a result of the strains of the Great Depression. It took 1.25 Australian pounds to buy a pound sterling. It is possible that from the time the Australian pound began to depreciate against the pound sterling in 1929, the Tongan pound in practice followed the Australian pound.

In accordance with the powers granted to them under the Treasury Notes Act, the Commissioners of Currency fixed the minimum sum of currency it would exchange at £2,000. Funds could be left with the Bank of New Zealand, a commercial bank in that country, or the Bank of Sydney, an Australian bank. The Commissioners also set their commission rate for exchanging currency at 1.5 percent, so somebody exchanging Australian £2,000 would receive Tongan £1,970 in notes from the Commissioners (Tongan government gazette, February 2, 1936: 5).

During the Second World War, the British government did not publish colonial annual reports, and we presently lack records from 1941-1946. Although we do not have much access to local financial information during this time, there are readily available accounts of Tonga's role in the War. In proportion to its size, Tonga contributed much to the British government and the Allied powers. Tonga donated three Spitfire Supermarine aircraft and 2,700 soldiers from the Tonga Defense Force to aid the Allies (Rutherford, 1977: 201). Furthermore, Tonga

accommodated 10,000 United States troops during 1942. Another interesting contribution came from the Tongan public servants, as all government officials donated 10 percent of their salary to the British government's war efforts. Tonga played a small but respectable role in the Allies' victory of the Second World War. It was sufficiently far from Japan that it was not invaded by Japanese forces.

Tonga maintained a fairly limited amount of notes in circulation during the Commissioners of Currency's first twenty years. At the end of 1939, there were only £20,073 worth of notes in circulation compared to the £20,000 in circulation during 1924 (Tonga Annual Report, 1924: 3). By 1946, the value of notes in circulation had made a substantial increase to £85,690; however, the biggest increases were yet to come. By the end of 1959, the value of notes in circulation was £280,747.90. That means that in 20 years, the value of notes in circulation increased by almost fourteen-fold. The substantial increase in value can be attributed to rising prices and increased production of Tonga's main export, copra (Tonga Annual Report, 1959: 16). It also may be the case that sectors of the economy where monetary exchange was initially limited became fully monetized during the period.

Near the end of 1957, the Tongan government began to consider the establishment of a Tongan coinage and movement to a decimal currency (Tonga Annual Report, 1957: 15). The impetus for creating a Tongan coin arose from the heterogeneity of foreign coinage. Australian and British coinage had been legal tender in Tonga since 1906; during the Second World War, coins from Fiji and New Zealand had also filtered into the general circulation (Tonga Annual Report, 1957: 15). During 1962, the Legislative Assembly passed the Tonga Coinage Act, which allowed the issuance of gold coins (Tonga Annual Report, 1963: 42). On April 22, 1963, under the authority established by the Coinage Act of 1962, a series of gold coins memorializing the centenary of emancipation (the end of serfdom as a legal institution) were issued by the Tongan Commissioners of Coinage (Tonga, Minister of Finance Report, 1963: 5). The gold coins were the first ever issued by Tonga and in fact the first issued within Polynesia. There were three types

of gold coins: the Koula (twenty units), the Half Koula (ten units), and the Quarter Koula (five units). The coins were minted in both a regular circulation series and a proof series, consisting of 10,800 coins and 1,050 coins, respectively. By December 1963, the value of gold coins in circulation was £102,180; furthermore, the Coinage Security Fund, which held the assets that backed up the coins in circulation, was valued at £108,217. The circulation of gold coins was unusual for the time; almost everywhere else, gold coins had gone out of circulation by the Second World War.

Shortly after the establishment of the Tongan Commissioners of Coinage, the Tongan government moved forward with its plans to establish a decimal currency system. During 1965, the government reached an agreement that the decimalization would be effective for Tonga; thus, a change-over date was recognized for 1966 (Tonga Minister of Finance Report, 1965: 7). In February 1966, the Assistant Treasurer of Tonga met with members of decimal currency committees from New Zealand and the United Kingdom to oversee the Australian transition to a decimal currency system (Tonga Minister of Finance Report, 1966: 7). Tonga then decimalized on the same day as Australia, February 14, 1966.

Tonga's decimalization led the way to a new currency, the Pa'anga. The call for a new currency was a direct result of an Australian change in currency and switch to decimalization. Both currencies shifted from the pounds-shillings-pence system to the decimalized system and consequently created the Tongan Pa'anga and Australian dollar. The Pa'anga could be divided into 100 parts, which in the simplest form was a Seniti (Tonga Minister of Finance Report, 1966: 7), similar to a U.S. penny. The denominations of the Pa'anga in notes were ten, five, two, one, and one-half Pa'anga, and in coins, one Pa'anga and 50, 20, 10, 5, 2, and 1 Seniti. Accompanying these new currencies and denominations were new exchange rates. After both countries decimalized, the exchange rate was 1 Tongan Pa'anga = 1 Australian dollar (Krus & Schuler, 2014: 233). Furthermore, since the old currency was still in circulation, the exchange rate of new to old Tongan currency was 2 Tongan Pa'anga = Tongan £1. It was reported though that by the end of

1967, 93.23 percent of the Tongan pounds outstanding had been exchanged through the nation's treasury (Tonga Minister of Finance Report, 1967: 7).

During 1988, the Tongan Legislative Assembly passed the National Reserve Bank of Tonga Act. This legislation replaced the Board of Commissioners of Currency/Coinage with a central bank, the National Reserve Bank of Tonga (Krus & Schuler, 2014: 233). The system change was made so that Tonga could have more freedom with its monetary policy.

A central banking authority and floating exchange rate offers monetary autonomy that an orthodox currency board does not. For example, a central bank is a lender to financial institutions. To control the money supply, a central bank changes the interest rate that it charges to financial institutions that borrow from it. A central bank's ability to change the money supply gives it economic influence through monetary policy, which allows the bank to either stimulate or contract the economy. An orthodox currency board, unlike a central bank, does not lend to financial institutions or the government and therefore has no borrowing rate to affect the money supply. This is the crux of a currency board's effectiveness in maintaining a fixed rate with its anchor currency, for the government can not rely on the central bank to print more money. A currency board fosters government monetary responsibility and thus aids in controlling inflation.

To what extent was the board of commissioners of currency an orthodox currency board?

To evaluate whether or not the Tongan Board of Commissioners of Currency acted as an orthodox currency board, we must specify the qualities and functions of an orthodox currency board. The fundamental features include: issuing notes and coins that can be converted without restriction into a foreign anchor currency at a fixed exchange rate and a monetary base (liabilities) backed 100 percent or slightly more by foreign assets, such as low-risk bonds in the

anchor currency or gold (Hanke, 2002: 88). The main purpose of a currency board is to stabilize a country's currency by limiting the scope for discretionary monetary policy. So, to what extent did Commissioners of Currency act as a currency board?

One characteristic of a currency board is that the domestic currency maintains a fixed exchange rate against an anchor currency. As previously stated, Tongan currency kept a fixed exchange rate against Australian currency for the entire lifetime of the Commissioners of Currency. Tonga even decimalized its currency on the same day that Australia abandoned the pounds-shilling-pence system. Thus, the Tongan Commissioners of Currency satisfied this requirement of currency board orthodoxy.

To determine whether the Tongan Commissioners of Currency met other standards of orthodoxy, we will develop statistical tests. We have compiled and digitized data by way of Tongan government gazettes and Tongan colonial annual reports. Our tests utilize balance sheet analysis of both the Commissioners of Currency and later the Commissioners of Coinage once it was established. The data go back to 1933, with one major gap between 1941 and 1949 and scattered other missing years. Until 1936, statements were issued quarterly. Semiannual reports were then made until 1954 and finally annual statements until the Commissioners of Currency ceased. The data used for these tests are available in the accompanying spreadsheet workbook.

Many of the balance sheets for the Tonga Commissioners of Currency published in the Tongan government gazettes and annual reports did not have assets equal to liabilities. After the Commissioners of Coinage were created, there were two separate balance sheets, one for notes and one for coins. These separate balance sheets both still did not balance. The reason may have been that the balance sheets would have balanced without requiring a net worth term had securities been valued at cost, but the securities were carried on the balance sheet at market value without any corresponding net worth term. To address this issue, we have added a net worth term to balance the otherwise unbalanced balance sheet. When there are more

liabilities than assets, there is a negative net worth, and when assets exceed liabilities, there is a positive net worth. Substantial negative net worth, exceeding say 5 percent of total assets, means that the monetary authority is not a truly orthodox currency board, because foreign assets are not close to 100 percent of the monetary base.

Test one: Foreign assets, domestic assets, and monetary base

The first statistical test in this analysis is net foreign assets as a percentage of the monetary base (liabilities), shown in Figure 1. As previously stated, an orthodox currency board will back its monetary base with 100 percent or slightly more net foreign assets. However, a clause from the Treasury Notes Act established that foreign reserves only had to back 75 percent of the monetary base (Skully, 1987: 163), although the Commissioners of Currency were free to hold a higher ratio. The next statistical test in this analysis is net domestic assets as a percentage of the monetary base (liabilities), shown in Figure 2. An orthodox currency board will hold zero net domestic assets or a number relatively close to zero. In the event that a meaningful amount of domestic assets back up the monetary base, a faltering domestic economy can substantially reduce their value, harming the currency board's ability to facilitate immediate liquidity of currency exchange between the domestic and anchor currency. Backing the monetary base with foreign assets allows the currency board to prevent liquidity issues when its country's economy or assets are faltering.

Figure 1 shows a continuous chart (closing gaps between missing years of data) of the Tongan Commissioners of Currency's foreign assets as a percentage of its monetary base. The Commissioners of Currency initially operated in orthodox currency board fashion for all but a couple of years from 1933 to 1966, maintaining an average foreign asset ratio exceeding 99 percent during that period. However, after 1966 the percentage dropped and stayed below 80 percent, and at times below 60 percent, for the remainder of the existence of the

Commissioners of Currency. The sharp turn away from currency board orthodoxy came after Tonga and Australia decimalized and created new currencies, though there was no necessary connection between decimalization and the change in monetary policy. The only time that the percentage exceeded 100 percent was in 1979, when silver bullion appreciated sharply. This first test provides evidence that Tonga's Commissioners of Currency may have operated as an orthodox currency board until 1966; however, the case for currency board orthodoxy after 1966 is practically eliminated, because of how low the percentage drops and remains.

Figure 2 shows a continuous chart of the Commissioners of Currency's domestic assets as a percentage of the monetary base. Figure 2 mostly supports the conclusion derived from Figure 1. The Commissioners of Currency held domestic assets for most of their existence. As previously stated, an orthodox currency board will hold zero or very little in domestic assets. Our test shows that the Commissioners of Currency held zero domestic assets during the early 1930s but saw an increase in domestic assets by the time of the Second World War. It is possible that conditions after Japan started the war in the Pacific made the acquisition of foreign assets more difficult, leading to a bump up in domestic assets. Domestic assets then stayed at around 5-10 percent of the monetary base for the 20 following years, though, suggesting a fairly but not completely orthodox currency board. Figure 2 again shows a major deviation from orthodoxy after the Tongan currency system decimalized in 1966. Domestic assets as a percentage of the monetary base soared to over 40 percent and stayed between 30-40 percent for most of the remaining life of the Commissioners of Currency. Once again, the argument for an orthodox currency board after 1966 is practically dead on arrival.

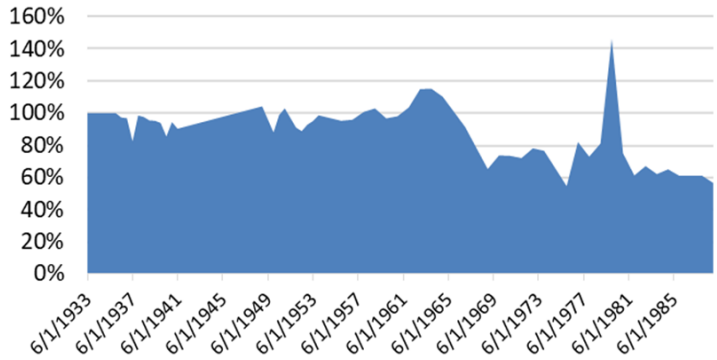


Figure 1. *Foreign assets as a percentage of the monetary base*

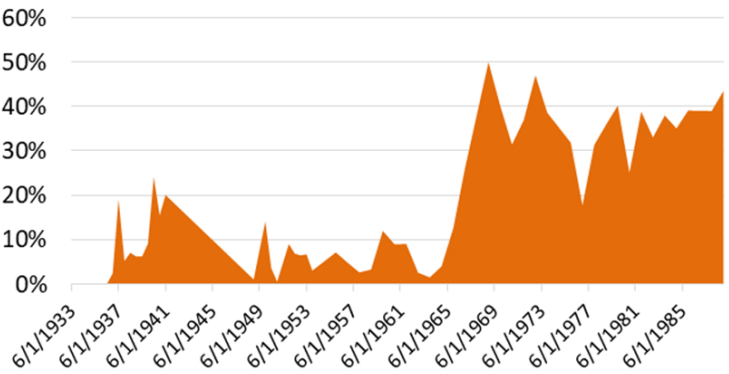


Figure 2. *Domestic assets as a percentage of the monetary base*

Test two: Reserve pass-through

Our second test analyzes the reserve pass-through of the Tongan Commissioners of Currency. Reserve pass-through is the year-over-year change in monetary base divided by the year-over-year change in net foreign assets. In an orthodox currency board, reserve pass-through should theoretically be 100 percent, but given certain difficulties in measurement, more realistically a range of 80-120 percent seems reasonable (Hanke, 2008: 280). The percentage should be near 100 percent because changes in monetary base should be directly related to the public's purchases and sales of foreign currency in exchange for domestic currency.

Figure 3 displays a continuous chart of the Tongan Commissioners of Currency's reserve pass-through ratio. The ratio was highly volatile from start to finish. It generally remained between -400 percent and +400 percent and never stayed at or around 100 percent for more than a year or two. This, once again, is a deviation from currency board orthodoxy. When considering the results of Test One, the volatility of the reserve pass-through ratio makes sense. Because the monetary base was not backed in an orthodox currency board manner, the reserve pass-through ratio did not adhere to orthodox currency board standards. Furthermore, the large percentage of domestic assets likely threw off the reserve pass-through ratio. As the monetary base changed, both domestic and foreign assets changed, whereas with an orthodox board, basically only foreign assets should have mimicked the changes in the monetary base.

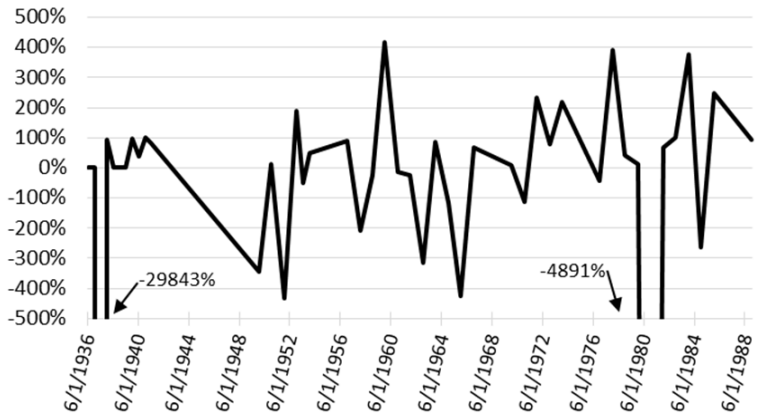


Figure 3. *Reserve pass-through year-over-year percentage*

Test three: Changes in monetary base and foreign assets

Our third test analyzes the year over year changes of the Tongan Commissioners of Currency's monetary base and net foreign assets. In an orthodox currency board, changes in foreign assets and changes in the monetary base should go hand in hand (Hanke, 2008). For example, if foreign assets rise by £10,000, then the monetary base should also increase by

approximately £10,000. (In practice, the timing of interest earnings, commission fees, and expenses usually adds some noise to the data, but not enough to undermine the usefulness of the test.) Observing the changes in monetary base and foreign assets can also help us have a better understanding of the reserve pass-through ratio, because they represent the specific changes from which the reserve pass-through ratio is derived.

Figures 4A and 4B show the year-over-year changes in both the monetary base and net foreign assets for the Tongan Commissioners of Currency. Figure 4A shows data from 1934 to 1966, whereas Figure 4B only shows data from 1966 to 1986. We have created two charts to magnify the monetary base and foreign asset changes of earlier years; moreover, the two charts allow a comparison between the earlier and later years of the Commissioners of Currency. The charts only consider data capable of being measured in a year over year fashion and is constructed in a continuous manner. The charts' "discrete" versions, showing all the gaps in data, are available in the accompanying spreadsheet workbook.

Figure 4B gives a look at the changes in monetary base and foreign assets from 1934 to 1966. In many years, the monetary base and foreign assets changed in line with one another or close to it. Furthermore, in many cases of deviation, changes in foreign assets outpaced the changes in monetary base, which signals that the foreign assets are increasing at a faster rate relative to the monetary base that they are backing up. Between 1934 and 1966 the changes are reasonably correlated, at 0.86. Because of the somewhat close correlation between the changes, the reserve pass-through test's implications can be slightly mitigated. However, there are still notable deviations between the changes in monetary base and changes in foreign assets, leading to a questionable claim of orthodoxy for the Commissioners of Currency when analyzing only Figure 4B.

Figure 4A, on the other hand, calls for vetting the changes in monetary base compared with the changes in foreign assets. Figure 4A covers the changes from 1966 to 1986, ending near the close of the existence of the Commissioners of Currency. The correlation plunges to 0.34. This indicates a major

deviation from orthodoxy as the changes are not moving in line with one another. One caveat to this is again the appreciation of silver bullion during 1979, which created major changes in both the monetary base and foreign assets. Regardless of this specific event, the accounts' changes relative to one another are not characteristic of an orthodox currency board. In conclusion, there is a possible case for orthodoxy from the beginning until around the time of decimalization; however, monetary base and foreign asset changes began to diverge distinctly soon after. For the most part, Test Three supports the findings in Test Two, because the change divergences warrant unorthodox reserve pass-through observations.

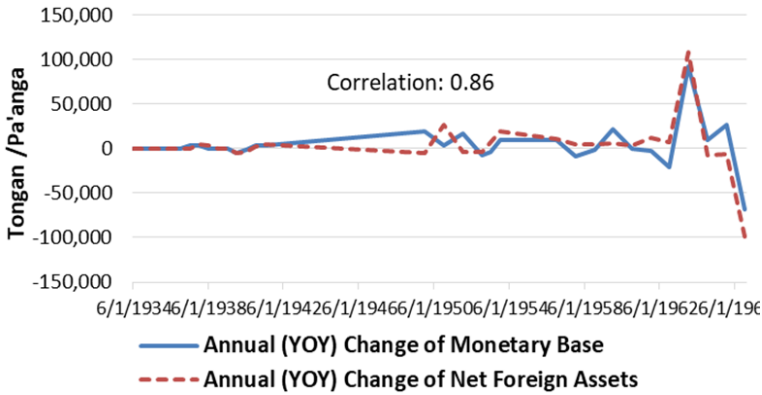


Figure 4a. *Changes in monetary base and foreign assets*

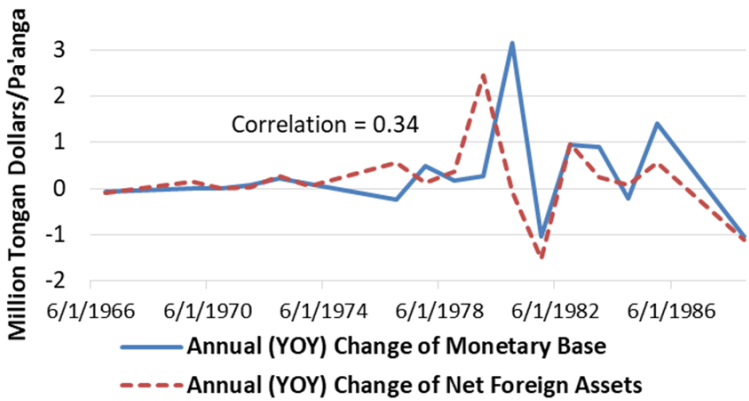


Figure 4b. *Changes in monetary base and foreign assets*

Test four: Net worth residual as a percentage of total assets

Figure 5 offers a continuous look at the net worth residual as a percentage of total assets. In an orthodox currency board, the percentage should be from zero to no more than roughly 15 percent. When this condition holds, assets equal or slightly exceed liabilities. As previously mentioned, for an orthodox currency boards, the assets should be foreign rather than domestic.

Figure 5 show several signs that the Tongan Board of Commissioners of Currency went against orthodox currency board standards. The net worth residual as a percentage of total assets dropped below zero three times from 1933 to 1987. Minor slipups came during 1936 and 1952, while a major drop occurred in 1975 and 1976. If we refer to Figure 1, we see that foreign reserves as a percentage of the monetary base was below 100 percent for each of the aforementioned years; moreover, when referencing Figure 4A, we can see a major divergence between the year over year changes in monetary base and net foreign assets.

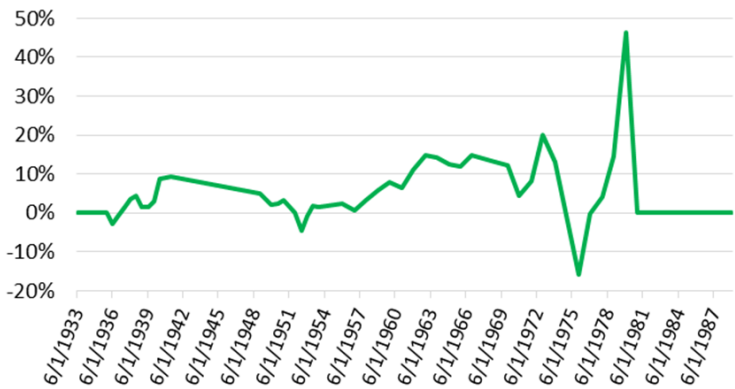


Figure 5. *Net worth residual as a percentage of total assets*

Beginning around 1956, we see a swift change from a net worth residual of 5 percent or less of total assets to a volatile residual, generally exceeding 5 percent. Passing 5 percent or 10 percent net worth residual as a percentage of total assets is unorthodox for Tonga specifically, because Tonga did not have

100 percent foreign assets as a percentage of the monetary base for almost the entire duration of the Commissioners of Currency after 1966. Some currency boards have consistently held foreign reserves up to 110 percent of monetary liabilities, in which case a 10 percent net worth residual is excusable; however, Tonga did not consistently hold foreign reserves above even 100 percent of the monetary base. In this case, any presence of excess net worth (when foreign assets are less than 100 percent of monetary assets) must come from domestic assets, which is a characteristic of unorthodoxy.

Conclusion

In consideration of our statistical tests and the legislative changes enacted by the Tongan government, it is logical to split our final consideration into two eras, pre-decimalization and post-decimalization. These two periods, 1919-1966 and 1966-1989, offer differing degrees of currency board orthodoxy and it is important to distinguish between them, as well as to consider the changes that caused these differences. An important constant throughout the lifetime of the Commissioners of Currency was the fixed exchange rate with the Australian currency. The Tongan currency adjusted to the ebbs and flows of the Australian monetary system from 1919-1989, which leaves an important variable constant in our analysis. This indicates a strong commitment to a fixed exchange rate; however, an orthodox currency board requires more than a fixed exchange rate.

Despite our lack of data from 1919-1933 and 1941-1947, there is a reasonable argument for currency board orthodoxy at least for 1934-1966 and probably for the whole period 1919-1966. Beginning with our first test, net foreign assets as a percentage of the monetary base were close to orthodox standards, with an average percentage was 99.3 percent. Although the average was almost 100 percent during this time, the percentage was below 100 for 14 of the 26 years for which we have data. These metrics suggest that there was not complete orthodoxy, but something close to it. Furthermore, if we look at domestic assets as a percentage of the monetary base, which should be zero, the

yearly average is 6.4 percent during the period. Once again, this is not fully orthodox, but it is close to the acceptable range. As alluded to earlier, reserve pass-through can be slightly misleading, especially if working with smaller numbers; thus, for practical reasons, we will use Test Three's findings. While there are obvious deviations displayed in Figure 4B, the changes in monetary base and foreign assets are fairly close (0.86 correlation from 1934-1966), given the obscurity of the reserve pass-through volatility. With these considerations, it is valid to say that the Tongan Board of Commissioners of Currency was not fully orthodox, but acted fairly close to it before decimalization.

Comparing the metrics pre- and post-decimalization, the difference is dramatic, indicating that the system was no longer close to an orthodox currency board. Beginning with Test One, we see that there is a steep drop-off. For example, the foreign assets as a percentage of monetary base metric average drops to 73.8 percent for the period 1966-1989. Although the Treasury Notes Act established that foreign reserves had to be equal to 75 percent or more of the monetary base, the Commissioners of Currency on average did not even meet this threshold after 1966. Moreover, the domestic assets as a percentage of the monetary base rose to 35.9 percent during the same period. Both of these movements are massive shifts in the unorthodox direction. We will shift our focus to Test Three once more and see another deviation from orthodoxy. The correlation between changes in the monetary base and foreign assets during the post-decimalization era is only 36.6 percent. All of these figures suggest that the Tongan Commissioners of Currency did not operate as an orthodox currency board or even close to it after 1966.

The Board of Commissioners of Currency's change in policy seems to have been related to the creation of the Commissioners of Coinage. There was no necessity that decimalization or the Commissioners of Coinage should have pushed the monetary authority in an unorthodox direction. Rather, it seems that they were coincidental with elements of a more discretionary monetary policy. Eventually, the Friendly Islands deemed that there was a need for more room for

discretionary monetary policy and to abandon a system that was not working in an orthodox manner. In 1989, Tonga granted itself more monetary autonomy by creating a central banking authority, the National Reserve Bank of Tonga, which still exists today.

Appendix

Tonga Currency and Legislation, 1906-1989

This is a compact, chronological representation of important events, legislation, and developments that affected the Tongan currency and the Board of Commissioners of Currency (see also Krus and Schuler 2014: 233-235).

- 1906 - British and Australian currency made legal tender in Tonga
- 1919 - Board of Commissioners of Currency established and first notes issued
- 1926 - Government Savings Bank created
- 1935 - Treasury Notes Act passed, fixed the Tongan currency to Australian currency
- 1962 - Tonga Coinage Act passed to allow issuance of gold coins
- 1966 - Tonga decimalizes on the same day as Australia
- 1988 - National Reserve Bank of Tonga Act passed, establishing central banking.

References

Hanke, S.H. (2002). Currency boards. *The Annals of the American Academy of Political and Social Science,* 579(1), 87-105.

Hanke, S.H. (2008). Friedman: Float or fix?, *Cato Journal,* 28(2), 275-285.

Krus, N., & Schuler, K. (2014). Currency board financial statements. Studies in Applied Economics Working Paper Series, Johns Hopkins Institute for Applied Economics, Global Health, and Study of Business Enterprise. [Retrieved from].

Rutherford, N. (1977). *Friendly Islands: a History of Tonga.* Melbourne: Oxford University Press.

Skully, M.T. (1987). *Financial Institutions and Markets in the South Pacific: a study of New Caledonia, Solomon Islands, Tonga, Vanuatu, and Western Samoa.* St. Martin's Press, New York.

Tonga Annual Report. (1923-1938, 1946-1961). Great Britain (United Kingdom). Colonial Office, *Tongan Islands Protectorate: Report for …* (1923/1924-1930); Colonial Office, *Annual Report on the Social and Economic Progress of the People of the Tongan Islands Protectorate, …* (1931-1938); not published 1939-1945 because of World War II; Colonial Office, *Annual Report on Tonga for the Year(s) …* (1946-1961). London: His / Her Majesty's Stationery Office. (This series was called "Colonial Reports" until World War II and "Colonial Annual Reports" afterwards; it was suspended during the war for most colonies.)

Tonga, Tonga Government Gazette. (1934-1945, 1947-1953, 1956-1967, 1969, 1975-1986). Nukualofa

Tonga. Laws.

Tonga. *Report of the Minister of Finance.* (1958-1967). Tonga.

Tonga. Treasury Notes Act. (1936). Tonga.

5 Did the Philippine Islands have a currency board during the American colonization period?

Ryan *Freedman*

Introduction

The Philippines had been a colony of Spain for over three centuries when the United States became the ruling power following the Spanish-American War of 1898. This paper summarizes the monetary system that was in place during most of the American colonization period. The system began in 1903 and was interrupted by the Japanese invasion of the Philippines in December 1941, which was one of the simultaneous Japanese military attacks that marked the start of World War II in the Pacific. The system resumed after Japanese occupation ended and continued until the start of 1949, when the Philippines established a central bank. This paperfocuses on the prewar period, for which full data were more readily available in the libraries consulted, although it quite briefly discusses the postwar period.

The analysis of the monetary policy that follows is particularly aimed at determining to what extent it resembled a currency board. The analysis is based on data retrieved from several government reports during the period, listed in the references at the end of the paper. Since most of my data

collected after the war is incomplete, the analysis is based on prewar data (1904 to 1941). Detailed annual balance sheet data of the monetary authority and of banks are in an accompanying workbook that makes them available for the first time in machine-readable form.

Start of American colonization

The American colonization period in the Philippines began during the Spanish-American War in 1898. Two days after the opposing sides agreed to a peace protocol, the United States established a military government on the islands. The Americans realized that the currency system in place on the islands was unsatisfactory for trade and investment with the United States. One of the main problems was that at the time, there were five different currencies in circulation, not all readily convertible into one another: (1) the Mexican silver peso, many of which had been smuggled into the country, (2) the Alfonsino peso, which was minted in Spain and served as thePhilippine currency during Spanish rule under a royal decree of 1897, (3) silver coins of less than a peso, (4) miscellaneous Spanish and other coins, and (5) bank notes issued by the Banco Español-Filipino (later renamed the Bank of the Philippine Islands) (Kemmerer, 1916: 249-251).

In 1901, the United States proposed a plan for currency reform that called for the Philippines to adopt thegold standard with a peso equivalent to half a U.S. dollar, which was approximately the market rate that the U.S. military authorities in the Philippines, acting with local banks, had adopted as a quasi-official rate. In short, this would put the Philippines on the gold exchange standard. The Philippine Commission, a body appointed by the U.S. President that exercised executive and certain legislative powers in the Philippines, formulated a plan that the U.S. Congress adopted. The Philippine Coinage Act was signed by President Theodore Roosevelt on March 2, 1903, and consisted of thirteen sections. Its main provisions were as follows: (1) the legal currency of the Philippine Islands would be a theoretical gold peso equivalent to one-tenth of a five-dollar gold piece, or 50 cents U.S. currency; (2) the

Philippine government was authorized to mint currency not exceeding 75 million pesos, and to mint silver coins of 50 centavos, 20 centavos and 10 centavos; (3) to maintain the value of the silver peso at the rate of one gold peso, the Philippine government was authorized to issue temporary certificates of indebtedness not to exceed$10 million; and (4) the Insular Treasurer was authorized to issue silver certificates and to retain the reserves to back them (Nagano, 2010: 33).The monetary system was intended to be one of 100 percent marginal foreign reserves, in which an additional reserve applied only to each new increment of deposits, rather than a system of 100 percent total reserves (Krus & Schuler, 2015, 197).The Philippine Commission issued $10 million worth of silver certificates as envisioned by the law (Lam, 1980: 50).

The Philippine Gold Standard Act, passed by the Philippine Commission on October 10, 1903, was enacted to implement the Philippine Coinage Act and establish the currency reserve. This act had the following significant provisions: (1) a trust fund, the Gold Standard Fund, was to be set up in the Insular Treasuryto maintain the parity of the silver Philippine peso with the gold standard peso; (2) a Division of Currency under the Bureau of the Treasury was created for facilitating the circulation of the currency and maintaining parity with the dollar; (3) to maintain the parity of the Philippine currency with the dollar, the Insular Treasurer was authorized to deploy three conversion systems: (a) selling on demand drafts on the Gold Standard Fund both in the Philippines and the United States; (b) exchanging U.S. bank notes or U.S. Treasury notes for Philippine currency; and (c) exchanging U.S. gold coin or gold bars for Philippine currency; (4) detailed regulations were prepared for the printing and issuance of the silver certificates and the reserve vault for the certificates (Luthringer, 1934: 3-5). Thelaw set no determinate size to the Gold Standard Fund. This led to huge fluctuations in the size of the Gold Standard Fund in relation to currency in circulation. In 1904, the fund was over 100 percent of currency in circulation, but by 1907, the ratio was about 1 percent. After 1907, the ratio pretty much settled at approximately between 35 and 50 percent. As mentioned below, a later law established determinate limits.

The Bank of the Philippine Islands continued to issue notes, and subsequently a second commercial bank, the Philippine National Bank (discussed later) also issued notes. So, for most of the American colonization period, Philippine currency consisted of the bank notes; government silver certificates; silver pesos; silver coins of less than a peso, with lower silver content; and small coins not made of silver. Unlike the case when the United States began its occupation of the Philippines, the different forms of currency were readily convertible into each other at unchanging rates. The silver certificates were backed 100 percent with silver coins and the silver coins had considerable value as metal, though less than their face value. The Gold Standard Fund, which backed all currency other than the notes of the two banks, was intended to provide enough of a reserve so that Philippine silver certificates and coins would always be readily exchangeable into U.S. dollars at the official rate, and hence convertible into gold at a fixed rate. Unlike the United States, the Philippines did not issue any gold coins. Depending on the value of silver in terms of gold, the combined value of the silver certificates and the Gold Standard Fund might be substantially below or above the 100 percent ratio that an orthodox currency board maintains. As was mentioned, though, at the margin the system was intended to operate on 100 percent foreign reserves, and the Gold Standard Fund was intended to be sufficient for any marginal demand.

Box 1. *Philippine Exchange Rates, 1903-1949*

1 August 1903-20 June 1916: 2 (new) Philippine pesos = US$1, or 1 Philippine peso = 11.61 grains (0.75238 grams) gold.

23? March 1919-1 January 1923: De facto float or band (see text for reasons).

2 January 1923-2 January 1942: 2 Philippine pesos = US$1. Until 8 March 1933 the peso was also worth 11.61 grains (0.75238 grams) of gold. The United States prohibited the export or paying out by banks of gold on 6 March 1933 and abandoned the gold standard on 9 March 1933, and the Philippines followed. The Philippines simply ignored the legal provisions that defined the Philippine peso in terms of gold (which were in Philippines, Act No. 3058, 13 June 1922).The United States returned to the gold standard on 1 February 1934 at a devalued rate, and the Philippines did likewise. The new rate was 1 Philippine peso = 6-6/7 grains (0.444335 grams) gold.

3 January 1942-4 March 1945: In the Japanese occupation during World War II the occupation authorities set the Philippine peso nominally equal to the Japanese yen, but the peso was in fact not readily convertible into the yen. The prewar exchange rate had been about 2.1 Japanese yen = 1 Philippine peso.

5 March 1945-2 January 1949: Returned to the prewar exchange rate. The Philippines registered a gold parity with the International Monetary Fund on 18 December 1946 (IMF1946: 4). The central bank, which began operations following the end of this period, initially maintained the previous exchange rate.

Source: Krus & Schuler (2014: 205).

To understand the gold-exchange standard, it is important to understand its differences with the gold standard more generally. The gold standard is a monetary system in which the standard economic unit of account is based on a fixed quantity of gold. There are three types of gold standards: specie, bullion and exchange. All gold standards involve (*a*) a fixed gold content of the domestic monetary unit, and (*b*) the monetary authority both buying and selling gold at the mint price (the inverse of the gold content of the monetary unit), whereupon the mint price governs in the marketplace (Officer, 2008: 1). The gold-exchange standard only involves the circulation of coins valued at less than their metallic value, for instance silver coins. This currency cannot be directly converted to gold, but it can be converted into a foreign currency, which can then be converted into gold. The authorities tend to impose a fixed rate for gold exchange on countries that are using a type of gold standard. In the Philippine case, the exchange rate was set at 50 U.S. cents per peso. This arrangement was put in place to set the Philippines on a gold standard without gold currency in circulation (Kemmerer, 1905: 590).

Implementation of the gold-exchange standard and immediate problems

Under the gold-exchange standard, the flow of financial assets convertible into gold was expected to adjust the currency supply to the currency demand. This was expected to be accomplished by the purchase and sale of exchange at rates

representing "gold points" of the gold peso with which the silver peso was to be kept at parity. The government issued new Philippine coins in July of 1903, but immediately encountered problems: the coins were worth more than their exchange value because silver was experiencing a cycle during which it appreciated roughly 50 percent against gold from trough to peak. Due to this, the coins quickly disappeared from circulation. The government countered with the Local Currency Taxation Act in 1904, which prohibited the importation of any currency not on a gold basis and provided for heavy taxation of the use of local (meaning pre-American) currency (Luthringer, 1934: 10). More problems arose when the price of silver increased further. Between 1905 and 1906, the price of silver increased well above the 29.25 British pence per troy ounce that was the bullion parity of the Philippine peso, and the government was unable to prevent people from smuggling large quantities of Philippine pesos out of the islands. As the price of silver increased, the silver pesos in circulation decreased. These circumstances led to the Philippine government obtaining authority from the U.S. government to recoin the currency in 1906, but with a 34 percent reduction in the silver content, to prevent the silver from exceeding the face value of the coinscontaining it (Luthringer, 1934: 12-13). Meanwhile, Filipinos started to prefer silver certificates over the silver pesos, which made the need for a silver certificate reserve unnecessary for the time being. Thus, in 1905 the U.S. Congress allowed the Philippine government to hold up to 60 percent of the total amount of silver certificates in the form of gold coins of the United States and provided that the certificates could either be redeemed in silver pesos or in gold coins.

The gold standard fund

The Gold Standard Fund began to grow rapidly in the following years due to Filipinos' preferences. By 1908, the net profits of the fund were so large that the Philippine Commission began to deposit a portion of the fund into Manila banks (Luthringer, 1934: 16).This created concern, as it violated

the principles of the Gold Standard Act. Despite the concern, the fund helped stabilize the gold exchange standard, mainly due to U.S. military expenditures to the Philippines. U.S.military expenditures for the Philippines were first transferred in dollars to U.S. banks as U.S. government depositories, and then, as the dollars were deposited into the Gold Standard Fund, silver certificates (in pesos) were issued accordingly. It was due to the constant flow of U.S. military expenditures that the U.S. dollar balance in the Gold Standard Fund continually increased despitethe trade deficit before World War I (Nagano, 2010: 35).

Table 1. *Gold Standard Fund*

Year	Fund in Manila Bank Pesos	Dollars	Fund in U.S.	Total (Pesos)	San Francisco Mint	Net Fund
1901	₱590,000	$518,000	$5,825,000	₱13,277,000	₱4,806,000	₱18,083,000
1910	₱4,134,000	$(304,000)	$7,675,000	₱18,876,000	₱463,000	₱19,339,000
1911	₱2,479,000	$(782,000)	$9,619,000	₱20,153,000	₱442,000	₱20,595,000
1912	₱7,112,000	$(1,819,000)	$7,242,000	₱17,958,000	₱288,000	₱18,246,000

Source: *Annual Report of the Treasurer of the Philippine Islands* 1901,1910-1912. Dates for each year are June 30, the end of the fiscal year at the time, except that 1901 is July 31. Parentheses indicate a deficit.

The portionof the Gold Standard Fund held in the United States increased from about 32 percent in 1901 to about 40 percent of the total amount (Net Fund) in circulation in 1910, as Table 1 shows. The Philippine Commission's Act No. 2067 of 1911 allowed for a portion of the Gold Standard Fund to be lent to local governments for a period of up to five years. In 1912, Act No. 2083 introduced the following regulations: (1) the total amount of the Gold Standard Fund was fixed at a sum equal to 35 percent of Philippine government money in circulation, (2) all the monies in the Gold Standard Fund in excess of the above provision were to be deposited to the credit of a generalfund in the Bureau of Treasury in the Philippines, and (3) less than 50 percent of the Gold Standard Fund could be invested for periods not exceedingten years in loans to provinces and municipalities. Thus, loans and investments allocated from the Gold Standard Fund increased annuallyfrom about 12 percent in 1912, when the act was introduced, until they reached nearly

80 percent of the total fund in 1916, as shown in Table 2. This was due to the increase in domestic assets, as loans and investments on the island began increasing, while the Gold Standard Fund continued to decrease. Utilizing the Gold Standard Fund in this way was a deviation from its intended purpose of maintaining the Philippine currency against fluctuations in the price of silver.

The currency reserve fund

The expansion of the economy in the early years of U.S. colonization led to the growth of monetary circulation, including silver certificates. This made it difficult for the government to keep the Silver Certificate Reserve balanced, due to the rapid increase of silver certificates in circulation. In 1906, the government passed provisions that allowed silver certificates to be redeemed in gold or silver pesos (Nagano, 2010: 37). In 1916 the Philippine governmentenacted another provision that allowed theSilver Certificate Reserve to be deposited in U.S. dollars in U.S. commercial banks as the designated depositories of the Philippine government. This led to a combination of the Gold Standard Fund and the Silver Certificate Reserve, which is explained by George Luthringer in his authoritative 1934 book:

When the major part of the Silver Certificate Reserve became deposits in United States banks, held in exactly the same manner as the balance of the Gold Standard Fund maintained in that country, the Silver Certificate Reserve began to be used in such a way that it assumed in part the function of the Gold Standard Fund.

Table 2. *Loans and Investments of the Gold Standard Fund, 1912-1918*

Date	Total Fund Amount	Loans and Investments
June 30,1912	₱18,272,000.00	₱2,214,000.00
June 30,1913	₱18,369,000.00	₱5,714,000.00
December 31,1913	₱18,402,000.00	₱7,647,000.00
December 31,1914	₱18,456,000.00	₱8,443,000.00
December 31,1915	₱18,519,000.00	₱9,942,000.00
December 31,1916	₱13,391,000.00	₱10,608,000.00
December 31,1917	₱13,474,000.00	₱10,741,000.00
August 15,1918	₱14,497,000.00	₱10,466,000.00

Source: Annual Report of the Treasurer of the Philippine Islands, 1912-1918.

Namely, instead of being used merely as a reservefor the maintenance of the parity of the silvercertificates withthe coined silver pesos which they represented, the Silver Certificate Reserve began to be used as a regulator fund for maintaining the parity of the silver certificates with the theoretical gold peso. Thus, silvercertificates wereissued directlyagainstdeposits in banks in the United States and were redeemed in drafts drawn on these deposits. (Luthringer, 1934: 44)

Since the Gold Standard Fund and the Silver Certificate Reserve now had similar functions, they were combined into a Currency Reserve Fund by Philippine Act No. 2776, which was passed in 1918. The Currency Reserve Fund would be deposited at member banks of the Federal Reserve System in the United States and no more than 25 percent of the Currency Reserve Fund could be deposited with any single branch depository in the United States, except at branches of the Philippine National Bank in the United States. Other provisions included changingthe name of silver certificates to "treasury certificates," authorizing the Philippine treasury to deposit silver pesos or gold coin of the United States in the Philippine Bureau of Treasuryand to issue treasury certificates, and stating that the Currency Reserve Fund was to be equal to 100 percent of all the treasury certificates in circulation, plus 15 percent of the total money of the Philippine government in circulation.

The Philippine National Bank and the financial crisis of the early 1920s

The Philippine National Bank was set up in 1916 as a partly government-owned bank. Its main functions were to lend to business for agriculture and agricultural commodities, finance the commercial sector, and issue bank notes (Nagano, 2010: 40-41). Before the establishment of the bank, the Philippine government had deposited the Gold Standard Fund and the Silver Certificate Reserve in U.S. commercial banks. Once the

Philippine National Bank's New York agency opened in 1917, the funds were increasingly deposited there.

During World War I the Philippines experienced an economic boom related to demand for certain of its exports and higher local spending by the U.S. military because of an increase in the number of military personnel stationed in or visiting the islands. The boom led to a sharp increase in the amount of Philippine currency in circulation. As of December 1916, there were approximately 67 million pesos in circulation. This number increased to about 103 million the following year, andby 1919, it reached a peak of almost 150 million. This is depicted by Chart 1, which shows total currency in circulation from 1904-1940. The chart also demonstrates that the increase in currencycame mainly from an increase in the issuance of treasury certificates. This was a result of a serious currency and credit inflation that was not fully matched by an increase in currency reserves.

By 1918-19, over $38 millionof the Currency Reserve Fund was deposited in the New York agency of the Philippine National Bank (Nagano, 2010: 41).Under a 100 percent marginal reserverule, reserves should have expanded as much as circulation, but reserves were mismanaged in a number ofways. First, a large proportion of the Currency Reserve Fund was transferred from New York to Manila by the sale of drafts on Liberty Loan purchases that the United States sold after its declaration of war against Germany in April 1917. This led to an increase in treasury certificate notes. Additionally, part of the Currency Reserve Fund was used by the Philippine National Bank for its loan business. In April 1919, the Philippine government issued bonds worth $10 million to raise funds to purchase drafts in the United States, but the shortage of currency reserves prevented the government from purchasing such drafts. The purchase of drafts was prevented by the fact that the New York balance of the Fund had been dissipated in the process of the inflation that occurred during the period (Luthringer, 1934: 78).

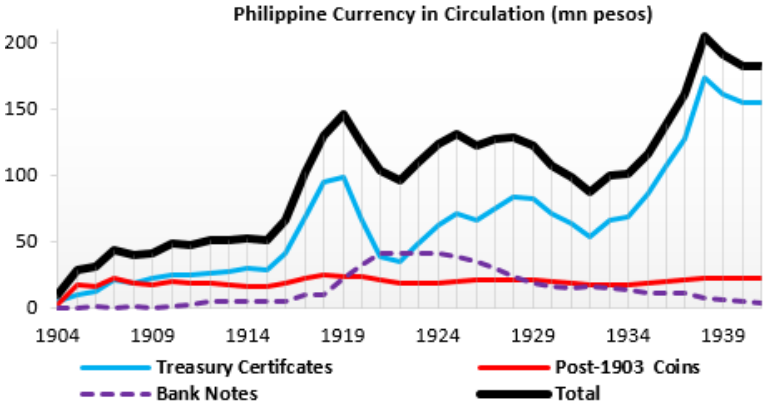


Figure 1. *Philippine Currency (1904-1941)*
Source: Statistical Bulletin of the Philippines, 1904-41.

In 1920, the prices of primary commodities declined sharply all over the world as the Federal Reserve and other central banks partly reversed their World War I era credit expansions. The Philippine currency and credit inflation resulting from the wartime economic boom ended, bringing the islands into a severe monetary crisis. The peso greatly depreciated because the Currency Reserve Fund was insufficient to cover demand. In response, the Philippine government tried to remove treasury certificates from circulation by selling drafts.

During this time, the Philippine government deviated from the gold exchange standard. Instead of selling drafts freely at the legal rates, the government steadily advanced the rates, making exchange on New York more expensive. The Philippine National Bank tried to remove treasury certificates from circulation with these drafts, but could not redeem bank notes it had issued haphazardly by the appropriation of the Currency Reserve Fund (Nagano, 2010: 41-42). On December 31, 1920, the bank was deficient by about 29 million pesos, and had 24.2 million pesos of notes outstanding (Luthringer, 1934: 157). Along with this, the mismanagement of the currency reserves by the Philippine National Bank as mentioned earlier aggravated the problem. "On June 30, 1922, when the Bank should have had reserves of 12.2 million pesos against its notes and deposits, it had only 182,000 pesos… On December 31, 1921,

with a note issue outstanding of 32.7 million pesos and with deposits of 84.4 million pesos, the Bank had only 1.1 million pesos ofcash in vaults." (Luthringer, 1934: 157). Although Philippine National Bank notes and deposits were not officially government liabilities, the government's status as the largest shareholder in the bank and the political links between the bank and the government made the bank part of thecurrency problem, as opposed to being a separate problem. The government was unable to force the bank to retire its notes, since the government owned 94 percent of the capital stock of the Bank, which was an increase from 20 percent in the earlier years, and could not afford to have the bank liquidated (Luthringer, 1934:157).

At the start of January 1921, the government tried to remedy the situation by negotiating with the Manila banks, including branches of some large foreign banks. The negotiation included these points: (1) the government agreed to have loans made through the Philippine National Bank to the Bank of the Philippine Islands, which was also in distress; (2) the banks agreed not to call on the government for help until the end of February; (3) the banks could not present for redemption the notes of either the Philippine National Bank or the Bank of the Philippine Islands; and (4) the government agreed to accept notes of the Philippine National Bank in payment of purchases of exchange on the Currency Reserve Fund in amounts equivalent to the difference between the amount of exchange wanted by any bank and the amount of Treasury certificates they were able to present (Luthringer 1934: 163-164). Additionally, the government enacted Act No. 2939 in January 1921. This act revised some of the provisionsof Act No. 2776, which had established the Currency Reserve Fund. The first part of Act No. 2939 stated that the Currency Reserve Fund had to be maintained at a minimum of 60 percent of the nominal value of Treasury certificates in circulation up to a total circulation of 120 million pesos, and 100 percent of pesos in excess of 120 million. This was a deviation from the original 100 percent reserve ratio of the Currency Reserve Fund. The second part called for any surplus in the Currency Reserve Fund, and

for all its investments, to be transferred to the general fund in the Bureau of Treasury (Nagano, 2010: 42).

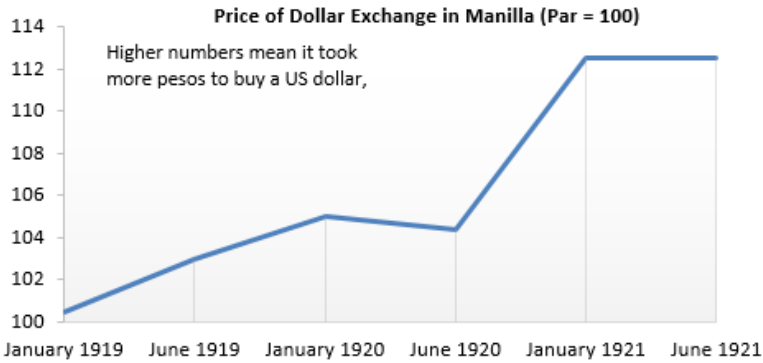


Figure 2. *Price of Dollar Exchange in Manila at Start and Halfway through the Year*
Source: Statistical Bulletin of the Philippines, 1923.

By the end of February, the Philippine National Bank had lent the Bank of the Philippines almost 7 million pesos and the government had sold exchange of $8.6 million (Luthringer, 1934: 164). By the Philippine Coinage Act of 1903, the peso was to be equal to 50 U.S. cents, or 2 pesos per dollar, but during the financial crisis, the rate fluctuated due to a decrease in exports and no significant change in imports.

The currency and credit inflation led from a small premium over the parity rate at the start of 1919 (104 percent by December 1919) to a larger premium by June of 1921 (112.5 percent), shown in Figure 2. This means that one dollar was equivalent to 2.08 pesos in 1919 and 2.25 pesos in 1921.

The rate settled at2.16 pesos per dollar (in the terminology of the time, 108 percent of parity) by the end of 1921. An increase in exports and a lower volume of imports then allowed for the currency to regain some of its value. By 1922, the Philippines had a balance of payments surplus because of higher commodity exports, and that in addition to a decrease of currency in circulation allowed the exchange to return to its official rate of 2 pesos per dollar.

Rehabilitation in the later 1920s

The first step toward rehabilitation of the exchange rate system was to revise the regulations on the currency reserve. The exploitation of the Currency Reserve Fund by the National Bank had been detrimental to the economy and needed to be corrected so that it wouldnot happen again. It was strongly advised and advocated by Benjamin Franklin Wrightto return to the original currency laws. At the time, Wright, who had a career in finance split between California and the Philippines, was acting as a special bank examiner for the Insular Government, and eventually was able to push for the passage of Act No. 3058 in 1922. The main provisions of this act werethe abolition of the Currency Reserve Fund and the return to a separate Gold Standard Fund and a Treasury Certificate Fund. Other important sections called for the Gold Standard Fund to be maintained at a level not less than 15 percent of the Treasury certificates pluscoins in circulation and available for circulation, and for the Treasury Certificate Fund to be equivalent to 100 percent of all Treasury certificates in circulation. The act was approved in June of 1922, but did not go into effect until January of the following year due to the delay in the sale of government bonds (called certificates of indebtedness) that needed to be issued to restore the currency reserves (Luthringer, 1934: 201-203). The increase in Treasury certificates resulted in the Treasury Certificate Fund becoming significantly larger than the Gold Standard Fund in the years following the abolition of the Currency Reserve Fund. This can be seen in Table 3.

Table 3. *Gold Standard Fund vs. Treasury Certificate Fund*

Year	Gold Standard Fund (Pesos)	Treasury Certificates (Pesos)	Gold Certificate Fund as a Share of Treasury Certificates (%)
1923	13,622,904.82	62,084,788.00	21.9
1924	15,649,016.74	76,442,325.00	20.5
1925	18,427,683.98	94,595,383.00	19.5

Source: Annual Report of the Treasurer of the Philippine Islands 1923-25.

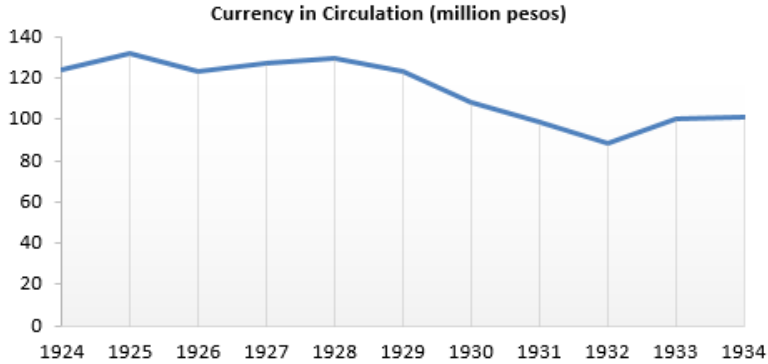


Figure 3. *Currency in Circulation*
Source: Statistical Bulletin of the Philippines, 1924-34.

By establishing the Treasury Certificate as the main currency, the currency system in the Philippines was no longer maintained by the stabilization of foreign exchange through the Gold Standard Fund, but rather through the maintenance of the parity of the peso against the U.S. dollar by the regulation of the currency supply under the control of the Treasury Certificate Fund. This was a major change from the gold exchange standard, in which the Gold Standard Fund had been regulating the foreign exchange and currency system (Luthringer, 1934: 220-22).

Starting from the implementation of Act No. 3058, the Treasury Certificate Fund played a more important role in the currency reserve of the Philippines. The larger part of the Treasury Certificate Fund was deposited in the United States banks—other than the New York agency of the Philippine National Bank—such that the stabilization of Philippine currency was now closely linked to the monetary and credit system of the U.S. (Nagano, 2010: 44).

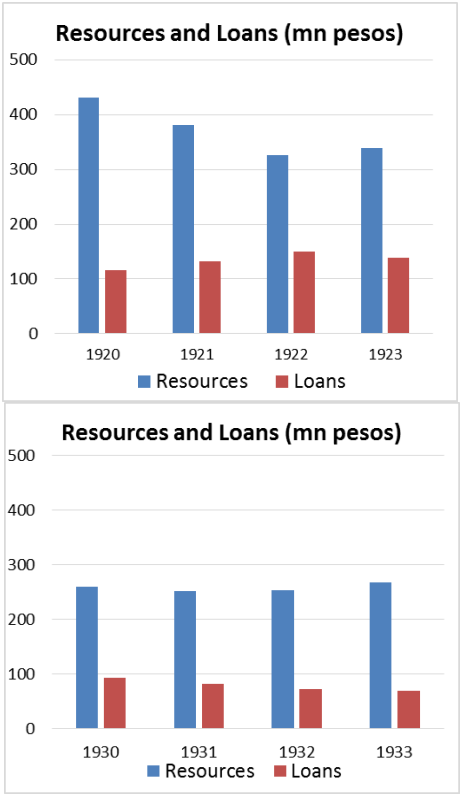


Figure 4. *Resources and Loans during the Start of 1920s and 1930s*
Source: Statistical Bulletin of the Philippines, 1920-23,1930-33.

The Great Depression era

Under measures implemented to stabilize the currency system, the currency in the Philippines fluctuated between 120-130 million pesos in the 1920s, but then dropped to about 100 million pesos in the early 1930s. This was a direct result of the Great Depression, as can be seen in Figure 3. Philippine monetary policy mirrored the contractionary policy of the Federal Reserve System, illustrating a downside of the currency board system: if the anchor currency has a bad monetary policy, so will the currency board country. And like the United States, the Philippines saw a large decrease in the amount of total bank resources and loans in the early 1930s compared to the early 1920s, as depicted in Figure 4. Bank loans declined as

deflation made business conditions more difficult. Even so, the Philippines suffered less financial turmoil than the United States. The annual reports of Philippine government bodies and histories of the period mention no major bank runs or bank failures. In April 1933, the United States suspended the convertibility of paper currency into gold. The Philippines followed, preserving the parity of two pesos per dollar. The United States returned to a modified version of the gold standard in February 1934. In January 1934, the United States had enacted the Gold Reserve Act, allowing it to set a new parity for the dollar. The new parity involved a devaluation of 40 percent. The Philippines devalued the peso by the same percentage against gold to maintain the peso-dollar parity.

In March 1935, Act No. 4199 reformed the currency system as it had existed since Act No. 3058, passed in 1922. The major changes were: (1) the unit of monetary value in the Philippines would be the peso, and two pesos would be equal to one U.S. dollar rather than being defined in terms of gold; (2) for the purpose of maintaining the parity of the Philippine peso with the legal tender currency in the United States, the Gold Standard Fund was revamped as the Exchange Standard Fund; (3) the Exchange Standard Fund would be maintained at a level equal to not less than 15 percent of all Treasury certificates and coins in circulation and available for circulation; (4) The Exchange Standard Fund would be held in the vaults of the Bureau of Treasury in Manila, though a portion could be held in the U.S. Department of Treasury or with Federal Reserve banks or member banks of the Federal Reserve System in the United States; and (5) the Treasury Certificate Fund had at all times to be equivalent to 100 percent of Treasury certificates in circulation and had to consist entirely of silver coins. It was to be held in the vaults of the Bureau of Treasury in Manila (see also Nagano, 2010: 45). In short, the Philippine currency was now on a dollar exchange standard, as opposed to the original gold exchange standard. This transformation reflected the transformation of the gold standard in the United States. Under the pre-1933 gold standard, anybody holding U.S. currency could demand its redemption in gold. Under the post-1934 gold standard, it was illegal for U.S. residents even to hold

gold (with minor exceptions for coin collectors, dentists and the like). Redemption of U.S. currency in gold was limited to foreigners, and for the purposes of this policy, Filipinos were not considered to be foreign.

From World War II to independence

The Japanese invasion of the Philippines began on December 8, 1941, just hours after the attack on the U.S. naval base at Pearl Harbor. Less than a month later, on January 2, 1942, the Japanese took control of Manila and their occupation of the Philippines began. The Japanese quickly organized a new government structure, including a new monetary system. Toward the end of January, the Japanese military had total control of the Philippine government and all government departments and bureaus (Bányai, 1974: 92).Retreating American and Filipino forces undertook to evacuate reserve assets and destroy Philippine notes held in vaults (see United States, High Commissioner to the Philippine Islands, 1942: 49-57.)

The invading forces immediately began seizing local and U.S. money, in total taking more than $20.5 million from the inhabitants of the Philippines. The Japanese also issued their own currency, which was known as the Japanese peso. The goal was to have this new currency be of equal value to the Philippine peso, but this did not happen since the currency wasissued in amounts greater than the public wished to hold at the official exchange rate. Prewar Philippine pesos had been printed in the United States, hence the Japanese could not simply print more currency of the same design and spend it into circulation. Over 11.1 billion Japanese pesos were issued, as opposed to the 183 million Philippine pesos that were outstanding in 1940, before the occupation (Treadgold, 2003: 66-67). This was seen as advantageous to the Japanese military forces because they could procure or purchase almost anything in quantities by issuing more pesos (Bányai, 1974: 93). The result, though, was an inflation that continued to get worse and worse until the liberation of the Philippines. Witnesses recounted that 75 Japanese pesos could only buy one duck egg

(Noe, 2005). Overtime, the Japanese peso depreciated even more, up to the point where in 1944 people needed to take suitcases full of Japanese pesos to the market tobuy food for their families. By January 1945, the Japanesepeso had a purchasing power of only 1/120 of the pre-war peso (Treadgold, 2003: 67). Depreciation continued until the Japanese surrender in September 1945. In areas of the Philippines where Japanese control during the war was weak, local guerilla forces issued emergency currency. In the aggregate, these issues were of moderate importance by the end of the war. After the war the government established a body to redeem some of the guerilla issues, which in certain cases the Philippine government in exile had authorized.

Following the Japanese surrender, the Philippine government continued using the pre-war system, where once again, 2 Philippine pesos were equivalent to 1 U.S. dollar. In principle, the restoration was a relatively straightforward task because the foreign exchange reserves that had provided pre-war backing for the peso had been preserved intact in the United States during the Japanese occupation. The restored system was simplified in late 1946, a few months after the Philippines achieved full independence from the United States (Independence had been promised by pre-war legislation). The Philippine Congress amended the currency laws to abolish the minimum 15 per cent reserve requirement of the Exchange Standard Fund. In addition, the government appropriated the excess reserves that had emerged in the Treasury Certificate Fund as a result of currency lost or destroyed during the war. This system remained in place until the Central Bank of the Philippines opened on 3 January 1949 in accordance with Republic Act No. 265 of the previous year. This act formally severed the automatic link between the balance of payments and the money supply by placing responsibility for control of the latter in the hands of the central bank. (Treadgold, 2003: 67).

Currency board analysis

Orthodox currency boards issue notes and coins convertible on demand into a foreign anchor currency at a fixed rate of exchange. As reserves, they hold foreign assets equal to or even slightly greater than their monetary liabilities. In this way, currency boards eliminate monetary policy and operate automatically. A currency board is not allowed to alter the exchange rate, and market forces determine the quantity of the domestic currency in circulation and the demand for domestic currency (Hanke & Schuler, 1994, 2015). Here we are going to review the history of the Philippines during this period, and referencesto certain instances where currency board deviations occurred will be presented. A number of statistical tests with digitized spreadsheet data from the period will be performed to determine how orthodox the currency board was. All the following tests exclude 1941-49 due to a lack of records during the war, and difficulty in collecting certain postwar data.

Table 4 on the next page summarizes the frequent changes that the reserve backing of the Philippine currency experienced as a result of law and administrative practice.

Table 4. *Change in Reserve Ratios of Philippine Currency Funds*

Dates	Convertibility fund	Certificate fund
6 October 1903 -22 June 1906	Gold Standard Fund No specified reserve ratio	Certificate Redemption Fund 100% silver against certificates in circulation and available therefor
23 June 1906 -January 1908	Gold Standard Fund No specified reserve ratio	Silver Certificate Reserve 100% against certificates in circulation and available therefor, of which up to 60% could be gold (so, at least 40% silver)
January 1908 -7 December 1911	Gold Standard Fund No specified reserve ratio	Silver Certificate Reserve Same as above, but the government began in practice to deposit some funds of the reserve in local banks
8 December 1911 -15 August 1918	Gold Standard Fund 35% of Philippine government money in circulation or available therefore, excluding gold reserves backing silver	Silver Certificate Reserve Same as above

	certificates; up to half could be domestic assets	
16 August 1918 -2 February 1921	A single Currency Reserve Fund replaced the two formerly separate funds; its reserve ratio was 100% of Treasury certificates in circulation and available for circulation, plus 15% of Philippine government currency in circulation and available for circulation, excluding gold reserves backing Treasury certificates; if it was necessary to issue certificates of indebtedness to bolster the reserves, they were subject to the same reserve requirements as Treasury certificates; there was no limit on how much of the fund could be deposited with the New York agency of the Philippine National Bank, which was not an orthodox foreign asset	
3 February 1921 -1 January 1923	Reduced the reserve ratio to merely 60% of Treasury certificates in circulation and available for circulation, in response to losses incurred by the Philippine National Bank, where the government had deposited the largest share of the assets of the Currency Reserve Fund	
2 January 1923 -March 1935	Gold Standard Fund Re-established separate funds; this fund was to be entirely foreign assets and was to be 15-25% of Philippine government currency in circulation and available for circulation, including coins and Treasury certificates	Treasury Certificate Reserve Re-established separate funds; this fund was to have reserves of 100%, which could be in any mixture of silver or gold
March 1935 -2 January 1942	Exchange Standard Fund Same as above but name changed	Treasury Certificate Reserve Same as above
3 January 1942 -3 March 1945	Japanese occupation authorities established their own currency system during World War II and the former system was in abeyance	
4 March 1945 -28 October 1946	Exchange Standard Fund Same as before Japanese occupation	Treasury Certificate Fund Same as before Japanese occupation
29 October 1946 -2 January 1949	Exchange Standard Fund No specified reserve ratio	Treasury Certificate Fund Same as above

This brief review of the monetary system identifies several deviations from a currency board system can be identified. When the monetary system was set up, it was intended to have 100 percent marginal foreign reserves, which is different from the 100 percent total foreign reserves expected in an orthodox currency board system. Marginal foreign reserves are defined as additional reserves applied only to each new increment of monetary liabilities, while 100 total reservesmean that for every peso of monetary liabilities, there should have been the equivalent of a peso in foreign reserves such as U.S. dollars,

gold, or silver evaluated at the market rate. Additionally, the Philippines deviated from orthodox currency board rules in 1908 when the government started depositing currency reserve funds in local banks. Another major deviation was when the exchange rate was altered during the period of the financial crisis. Figure 2 showed us that the exchange rate during the period was floating, which violates the currency board rule that the exchange rate cannot be altered.

Foreign asset backing for the monetary base

We first measured net foreign assets as a share of the monetary base which can be seen in Figure 5. An orthodox currency board should operate with net foreign assets typically between 100 and 110 percent of the monetary base.

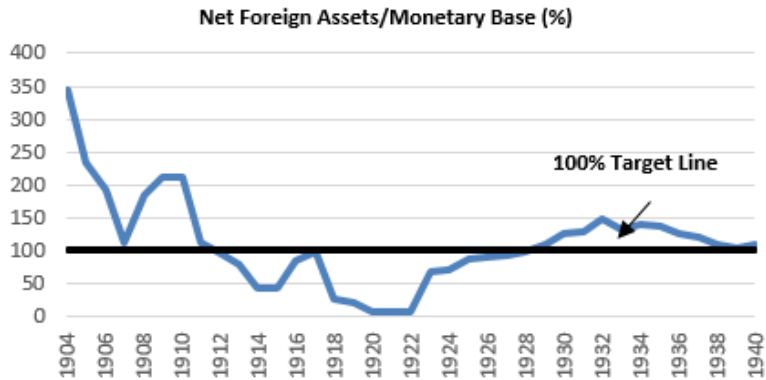


Figure 5. *Net Foreign Assets/Monetary Base*
Source: Annual Report of the Treasurer of the Philippine Islands 1904-1940

The analysis shows that the monetary system struggled to operate with 100-110 percent of net foreign assets. The most obvious deviations can be seen in the period leading up to and including the installation of the sole Treasury Certificate Fund, which we know deviated from the original rules of the Gold Standard Fund, and the earlier years when the currency board was being implemented. After the financial crisis and reimplementation of the Gold Standard Fund and Treasury Fund in 1923, the system operated around 80-120 percent. The

period leading up to the Japanese occupation was the most consistent in percentage, ranging just over 100 percent. Overall, the graph is all over the place, and has very few instances where the currency board operated according to orthodox currency boards.

Net domestic assets and the monetary base

In an orthodox currency board, the share of net domestic assets in thebacking for the monetary base should be zero or close to it. Figure 6 has data on the ratio in the Philippines. Thechart shows from 1909-1920, net domestic assets were a substantial share of the backing for the monetary base. This departure from currency board practice can be explained by the deviations mentioned earlier. The Philippine government bought local bonds, kept some deposits in local banks, and above all moved substantial deposits to the New York agency of the Philippine National Bank. Because of the bank's Philippine origin and substantial Philippine government ownership, deposits with it are more accurately characterized as domestic assets than as foreign assets. As we have seen, the failure to hold true foreign assets got the currency system into trouble. Excluding the 1908-1920 periods, the system operated in currency board fashion, with the net domestic assets being nearly zero.

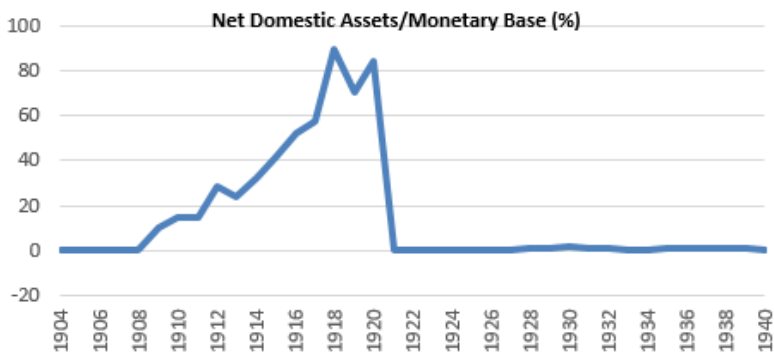


Figure 6. *Net Domestic Assets/Monetary Base*
Source: Annual Report of the Treasurer of the Philippine Islands 1904-1940

Reserve pass-through

The third test conducted is the "reserve pass-through," which measures the yearly change in monetary base divided by the yearly change in net reserves. Measuring on a year-over-year basis limits the confounding effect of seasonal changes and one-time financial events.

Ideally, for an orthodox currency board, the values should yield somewhere around 100 percent.In practice, the percentage can deviate to some extent even with an orthodox currency board because of other factors such as timing of income and expenditures, capital gains or losses, and other managerial or accounting practices. As Figure 7 shows, the Philippine currency system was usually far from that level. The only time it appears that it did operate close to that level was 1926-27, which was only a couple years after the crisis and reimplementation of the Gold Standard Fund and Treasury Certificate Fund. Most of the time, the ratio fluctuated widely, deviating from currency board orthodoxy.

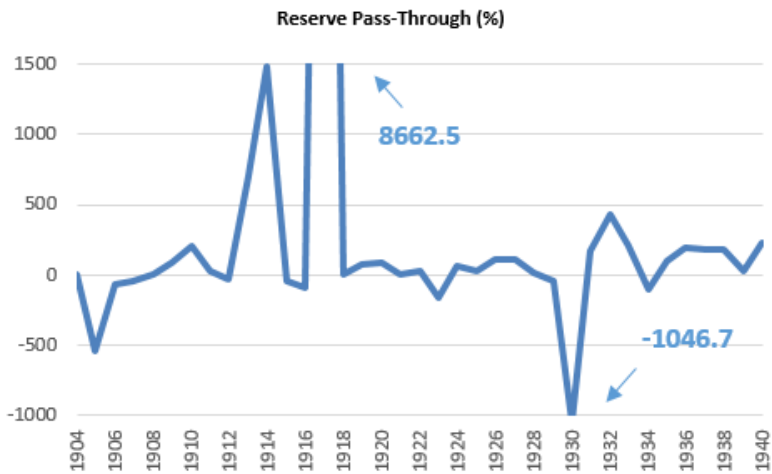


Figure 7. *Reserve Pass Through*
Source: Annual Report of the Treasurer of the Philippine Islands 1904-1940

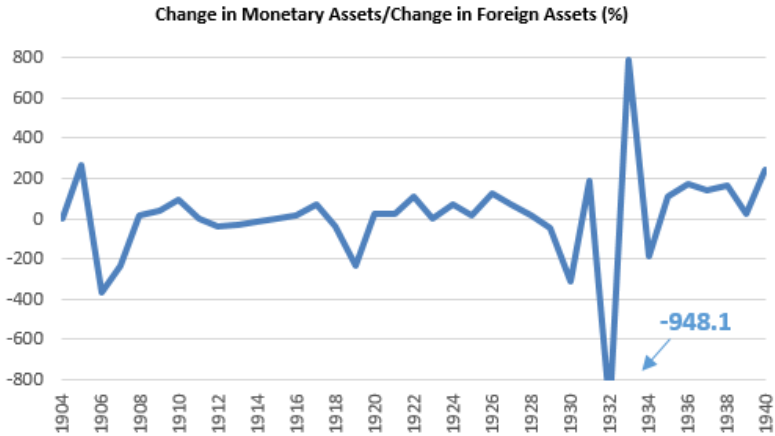


Figure 8. *Change in Monetary Base and Change in Foreign Assets*
Source: Annual Report of the Treasurer of the Philippine Islands 1904-1940

Changes in the monetary base and net foreign assets

Afinal test measures annual changes in the monetary base compared to changes in net foreign assets. When net foreign reserves rise (or fall) by a certain amount, the monetary base should also rise (or fall) by that same amount (Hanke 2008: 280). Figure 8 on the previous page shows the correspondence. Since the movements of the two should be correlated, we expect our values to yield about 100%. As seen above, this is clearly not the case. There are very few years where the values are between 80-120 percent.

Budget Analysis

In addition to the four tests used to measure currency board orthodoxy, budget statistics can be used to infera country's adherence to the implicit fiscal constitution inherent in currency board rules. Countries that have adopted currency boards tend to have fiscal discipline (Hanke, 2002: 92). Figure 9 shows the budget balance of the Philippines during the pre-World War II era. Surplus and deficit years were about equal from the establishment of the new monetary system until the Japanese invasion, although because of large surpluses in 1922

and 1937, there was on average a surplus of nearly 4.7 million pesos a year, or about 6.6 percent of average expenditure.

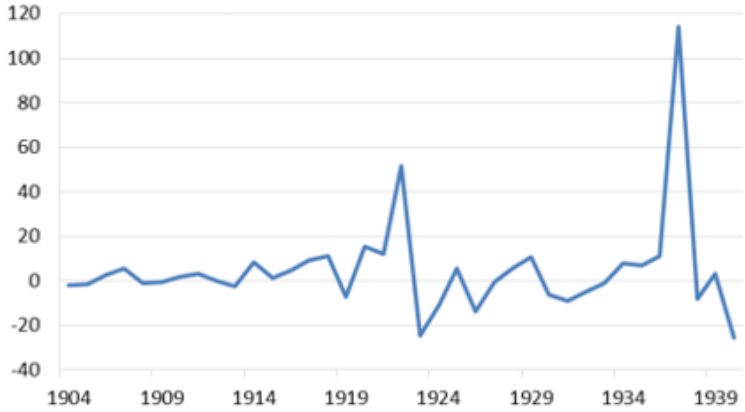


Figure 9: *Budget Balance (million pesos)*
Source: Statistical Bulletin of the Philippines, 1904-1920, 1940

Conclusion

Several years after taking the Philippines from Spain, the United States established a currency system that put the islands on the gold exchange standard. It was, at least at times, intended to work as a currency board, but ended up being a quasi-currency board at best. The system broke down for a time after World War I because it deviated from the regulations that had initially been established, and a currency crisis occurred. Reformsthen returned the currency system closer to its original intent. Based on the statistical tests performed here, the system exhibited some characteristics of an orthodox currency board but seems best described as a quasi-currency board. From the tests, we can additionally conclude that the currency board was most orthodox during the period right after the financial crisis.

The Philippines became independent of the United States in 1946 and eventually established a central bank in 1949 to replace the system described here. Central banking was considered at the time to be important for independent countries to have as tools of national economic policy. Some important contrasts between a central bank and a currency

board are (1) a central bank often only has limited convertibility of its currency into an anchor currency, (2) a central bank has partial or completely discretionary monetary policy that allows it to alter the exchange rate and ratio of foreign reserves, (3) a central bank typically acts as a lender of last resort to the financial system (Hanke & Schuler, 1994, 5).

It would require a separate analysis to determine whether central banking has helped, hurt, or made no difference for the Philippine economy compared to the monetary system described in this paper. Adherence to a fixed exchange rate with the dollar transmitted contractionary U.S. monetary policy to the Philippines after World War I and during the Great Depression. If deflation is a characteristic danger of a currency board system, though, inflation is a characteristic danger of central banking. One quick indication of the long-run performance of the Philippine central bank is that the exchange rate has gone from 2 pesos per dollar in 1949 to about 50 pesos per dollar currently.

Appendix

Philippine Laws on the Monetary System

The following list is from Krus & Schuler (2014: 203-205), with additions. References to Philippine legislation elsewhere sometimes distinguish among these periods by referring to legislation as Act (1900-1935), Commonwealth Act (1935-1946), or Republic Act (1946 onward), reflecting the different forms of governance the Philippines had during those periods.

- United States, An Act to Establish a Standard of Value and to Provide for a Coinage System in the Philippine Islands (Philippine Coinage Act), ch. 980, No. 137, 2 March 1903: Established a system with some similarities to a currency board and switched the currency from the silver standard to the gold standard.
- Philippine Commission, Gold Standard Act, No. 938, 10 October 1903: Local implementing legislation corresponding to the U.S. act.
- Philippine Commission, proclamation of 23 October 1903, cited in Kemmerer (1916: 289): Set the date for beginning the operations of the new currency system.
- Philippines, Local Currency Taxation Act, No. 1045, 27 January 1904: Imposed a tax on old currency effective 1 October 1904.
- United States, act of 23 June 1906 (Public No. 274, ch. 3521): Allowed the Philippine government at its discretion to reduce the silver content of Philippine pesos to as little as 70%; to reduce the silver content of smaller silver coins; and to allow gold coin to comprise up to 60% of the reserve held against silver certificates.
- Philippines, Act No. 1790, 12 October 1907: Allowed the Banco Español-Filipino (which shortly thereafter changed its name to the Bank of the Philippine Islands) to issue notes up to 9 million Philippine pesos under certain restrictions (see article 24 of the act). Apparently this ceiling was never raised until the bank ceased issuing notes decades later, and may have been later lowered.
- Philippines, Act No. 2083, 8 December 1911: Provided that foreign reserves exceeding 35% of currency in circulation and available for circulation, excluding silver certificates backed by gold, should periodically be transferred to general government revenue. (Previously no ratio had been specified.) The act also provided that the government could invest up to half of the Gold Standard Fund in Philippine provincial and municipal securities, and in a local railroad.
- Philippines, Philippine National Bank Act, No. 2612, 4 February 1916: The act establishing the bank made it the sole government depository and authorized it to issue notes, which it did. The bank was a commercial bank with majority government ownership; it was the successor to the smaller government-owned Agricultural Bank.
- Philippines, Act No. 2747, 20 February 1918: Amended the charter of the Philippine National Bank.
- Philippines, Act No. 2776, 6 May 1918: Comprehensively revised and restated the 1903 Philippine act. Combined the Gold Standard Fund and the

Silver Certificate Reserve as the Currency Reserve Fund and allowed the government to deposit no more than 25% of the Currency Reserve Fund in any U.S. depository *except* the New York branch of the Philippine National Bank. Also addressed coinage and counterfeiting.

- Philippines, governor-general's proclamation of 16 August 1918 (cited in Philippines, Bureau of the Treasury 1919: 23): The implementing order to Act No. 2776.
- Philippines, Act No. 2939, 28 January 1921: Acknowledged the reduced foreign reserves of the Currency Reserve Fund by reducing its minimum ratio of foreign reserves from 100% to 60% for the first 120 million pesos of Treasury certificates in circulation, with a 100% marginal ratio for certificates in excess of 120 million pesos. There was also a 100% reserve requirement against certificates of indebtedness. There was no reserve requirement against coins.
- Philippines, governor-general's proclamation of 3 February 1921 (cited in Philippines, Bureau of the Treasury 1921: 21): The implementing order to Act No. 2939.
- Philippines, Act No. 3058, 13 June 1922: The Currency Reserve Fund returned to quasi currency board rules after a currency depreciation caused by abandoning the rules. The law was not implemented until 2 January 1923 because of a delay in the sale of Philippine government bonds needed to bolster the Currency Reserve Fund (Philippines, Bureau of the Treasury 1923: 39). The minimum reserve against government currency "in circulation and available for circulation, including both coin and Treasury certificates" was 15% and the maximum was 25%.
- Philippines, Act No. 3174, 24 November 1924: Starting at the end of 1928 the Philippine National Bank had to make the first installments of assets deposited with the government to cover its note issue 100%.
- Philippines, Proclamation No. 559, 9 March 1933 (cited in Luthringer (1934: 249-250 n. 31): The United States prohibited the export or paying out by banks of gold on 6 March 1933 and abandoned the gold standard on 9 March 1933 and the Philippines followed. The Philippines simply ignored the legal provisions that defined the Philippine peso in terms of gold in Philippines, Act No. 3058, 13 June 1922.
- United States, Presidential Proclamation No. 2072, 31 January 1934: The United States returned to the gold standard on 1 February 1934. The U.S. proclamation set the weights of the US dollar at 15-5/21 grains of gold 9/10 fine from 3:30 p.m. Washington, D.C. time on 31 January 1934.
- Philippines, Act No. 4199, March 1935: Made substantial reforms to the currency system, including eliminating any reference to an exchange rate with gold and renaming the Gold Standard Fund the Exchange Standard Fund.
- Commander-in-Chief of the Imperial Japanese Army [in the Philippines], proclamation of 3 January 1942, cited in Bányai (1974: 90): During the Second World War, the Japanese issued occupation currency the day after entering Manila.

- (Other legislation from the Japanese occupation period is omitted as being not germane to the study of the currency board system.)
- Philippines, Executive Order No. 25, 18 November 1944: Japanese currency was demonetized in areas of the Philippines under Commonwealth (U.S.) control after their recapture late in World War II. (Printed in the first post-World War II issue of the *Official Gazette,* v. 41, no. 1, April 1945: 48-50.)
- Philippines, Republic Act No. 22, 25 September 1946: Created an Emergency Currency Board to register, redeem, and suppress emergency currencies issued by local anti-Japanese forces during World War II.
- Philippines, Republic Act No. 86, 29 October 1946: Appropriated excess reserves that had emerged in the Treasury Certificate Fund as a result of currency lost or destroyed during the war.
- Philippines, Central Bank Act, Republic Act No. 265, 15 June 1948: Established the Central Bank of the Philippines to replace the quasi currency board system.

References

Note on statistical sources: During the American colonization period, the Philippines was ruled by a U.S.-appointed military governor from 1898-1901, by a U.S.-appointed civilian governor-general from 1901-1935, and by a locally elected president from 1935 until independence in 1946. During the Japanese occupation period of World War II, a Japanese military governor ruled from 1942-1945, but this paper for the most part omits that period. During the period of a U.S.-appointed governor, the governor produced an annual summary of Philippine government affairs for the U.S. Bureau of Insular Affairs, a division of the War Department (a predecessor to today's Department of Defense). More detailed information on the monetary system was available in the annual report of the Treasurer and later also in a separate annual report by the Banking Commissioner. Starting in 1918 the Philippine government began issuing a statistical bulletin, and in 1940 and 1946 it published statistical yearbooks. The Japanese occupation interrupted the publication of the annual reports from 1941 until after the war.

The references include sources referred to only in the accompanying spreadsheet workbook. Links listed below were valid as of August 2017.

Bányai, R.A. (1974). *Money and Banking in China and Southeast Asia during the Japanese Military Occupation 1937-1945*. Taipei: Tai Wan Enterprises Company, Limited.

Central Bank of the Philippines, (1949) *First Annual Report.* Manila: Central Bank of the Philippines.

Fujita, K. (2003). Japanese military currency (1937-1945): Quantities printed and issued. *I.B.N.S. Journal*, 42(3), 1-24.

Gross, T., Heft, J., & Rodgers, D.A. (2012). On currency boards: An updated bibliography of scholarly writings, *Studies in Applied Economics Working Paper Series*, Johns Hopkins University Institute for Applied Economics, Global Health, and Study of Business Enterprise. [Retrieved from].

Hanke, S.H. (2002a). Currency Boards. *Annals of the American Academy of Political and Social Science,* 579, 87-105.

Hanke, S.H. (2002b). On Dollarization and currency boards: Error and deception, *Journal of Policy Reform,* 5(4), 203-222. doi. 10.1080/1384128032000096814

Hanke, S.H. (2008). Friedman: Float or Fix?, *Cato Journal,* 28(2), 275-285.

Hanke, S.H., & Schuler, K. (1994/2015). *Currency Boards for Developing Countries: A Handbook.* Original version San Francisco, Calif.: ICS Press. [Retrieved from].

Huff, G. (Forthcoming) *The Economics of World War II in Southeast Asia.* Cambridge: Cambridge University Press.

IMF. (1946). International Monetary Fund. *Schedule of Par Values,* December 18 (first number of the series). Washington: International Monetary Fund.

Jung, R. (2008). Did the Philippine Islands Have a Currency Board in the US Colonial Period (1903-1941)?, *Unpublished Research Paper*, Johns Hopkins

University Institute for Applied Economics, Global Health, and Study of Business Enterprise.
Kemmerer, E.W. (1905). The establishment of the gold exchange standard in the Philippines, *Quarterly Journal of Economics,* 19(4), 585-609. doi. 10.2307/1885290
Kemmerer, E.W. (1916). *Modern Currency Reform: a History and Discussion of Recent Currency Reforms in India, Porto Rico, Philippine Islands, Straits Settlements and Mexico.* New York: Macmillan.
Krus, N., & Schuler, K. (2014). Currency board financial statements. *Studies in Applied Economics Working Paper Series*, Johns Hopkins University Institute for Applied Economics, Global Health, and Study of Business Enterprise. [Retrieved from].
Lam, Y.C. (1980). Economic policy in the Philippines during the American colonial period, Thesis, University of Hong Kong. doi. 10.5353/th_b3194782
Luthringer, G.F. (1934) *The Gold-Exchange Standard in the Philippines.* Princeton: Princeton University Press.
Nagano, Y. (2007). *National Income Accounts in Philippine Economic History: A Preliminary Report on Data Gathering and Research Trends,* Hitotsubashi University Research Unit for Statistical Analysis in Social Sciences, Discussion Paper No.220. [Retrieved from].
Nagano, Y. (2010). The Philippine currency system during the American colonial period: Transformation from the gold exchange standard to the Dollar exchange Standard, *International Journal of Asian Studies,* 7(1), 29-50. [Retrieved from].
Nagano, Y. (2015). *State and Finance in the Philippines, 1898-1941: The Mismanagement of an American Colony.* Singapore: National University of Singapore Press.
Noe, B.A. (2005). A return to wartime Philippines, *Los Angeles Times.* Archived from the original on February 17. [Retrieved from].
Officer, L.H. (2008). Gold Standard, *In* S.N. Durlauf, & E.B. Lawrence (Eds), *The New Palgrave Dictionary of Economics,* 2nd Edition, Basingstoke, England: Palgrave Macmillan. [Retrieved from].
Philippine Commission. (1900-1935). *Public Laws Passed* [later *Enacted*] *by the Philippine Commission during the Period.* Manila: Bureau of Printing.
Philippines. (1902-1941, 1945-present). *Official Gazette.* Manila: [Bureau of Printing, 1902-1945; Department of Instruction and Information, 1945-?].
Philippines. (1942-1943). *Official Gazette of the Japanese Military Administration of the Philippines.* Manila: [Philippine Executive Commission].
Philippines. Banking Bureau. (1929-1939/1940). *Annual Report of the Bank Commissioner of the Philippine Islands to the Honorable Secretary of Finance for the Fiscal Year Ended ….* Manila: Bureau of Printing.
Philippines. Bureau of Commerce and Industry. (1918-1941) *Statistical Bulletin* (later*Statistical Bulletin of the Philippine Islands).* Manila: Bureau of Commerce and Industry.

Philippines. Bureau of Statistics and Census. (1940, 1946) *Yearbook of Philippine Statistics.* Manila: Bureau of Printing.

Philippines. Bureau of the Treasury. (1904-1940) *First Annual Report of the Chief of Division of Currency for the Philippine Islands to the Treasurer of the Philippine Islands for the Period from October 10, 1903 to September 1, 1904* (1903/1904); *Second Annual Report of the Chief of Division of Currency for the Philippine Islands to the Treasurer of the Philippine Islands for the Period from July 1, 1904 to September 1, 1905* (1904/1905); *Annual Report of the Treasurer of the Philippine Islands to the Secretary of Finance and Justice for the Fiscal Year Ending …* (1905/1906-1914); *Annual Report of the Treasurer of the Philippine Islands to the Secretary of Finance for the Fiscal Year Ending …* (1915-1939/1940). Manila: Bureau of Public Printing.

Philippines. Governor-General. (1916-1935) *Report of the Governor General of the Philippine Islands to the Secretary of War*. Washington: Government Printing Office.

Philippines. Secretary of Finance. (1914-1948/49) *Annual Report of the Secretary of Finance and Justice for the Fiscal Year Ending…* (1914-1934); *Annual Report of the Secretary of Finance to the President of the Philippines for the Period from…* (1935-1939/1940, 1947/1948-1948/1949). Manila: Bureau of Printing. (Libraries consulted had no post-World War II issues of the report earlier than 1947/1948.)

Philippines. Secretary of Finance and Justice. (1903-1913). *Annual Report of the Secretary of Finance and Justice for the Fiscal Year Ending.* Manila: Bureau of Printing.

Romualdez, E.Z. (1962). Financial problems created by the War, *Journal of History,* 10(4), 448-518.

Schuler, K. (1992). Currency Boards, *Ph.D. Dissertation*, George Mason University. [Retrieved from].

Treadgold, M. (2003). The Philippine currency board arrangement, 1945-48: A case of deflationary bias?, *Financial History Review,* 10(1), 57-74. doi. 10.1017/S0968565003000039

United States. Army. (1944). *Civil Affairs Handbook. The Philippines. Section 5: Money and Banking.* Army Services Forces Manual M365-5, Civil Affairs. Headquarters, Army Services Forces, December 1944. Washington: Government Printing Office. [Retrieved from].

United States. High Commissioner to the Philippine Islands. (1935/1936-1945/1946). *Message from the President of the United States Transmitting the First Report of the United States High Commissioner to the Philippine Islands Covering the Period from November 15, 1935 to December 31, 1936* (1935/1936);*Second* [etc.]*Annual Report of the High Commissioner of the United States to the Philippine Islands to the President and Congress of the United States*(1937-1945/1946). Washington: Government Printing Office.

United States. Office of the Comptroller of the Currency. (1904-1905). *Annual Report of the Comptroller of the Currency*. Washington: Government Printing Office.

United States. Philippine Commission. (1900-1915). *Report of the Philippine Commission to the Secretary of War*. Washington: Government Printing Office.

Wolters, W.G. (2003). From silver currency to the gold standard in the Philippine islands, *Philippine Studies,* 51(3), 375-404.

6 New Zealand's early monetary history and the colonial bank of issue, 1840-1856

Ronan *Corgel*

Introduction

New Zealand conducted its monetary policy through an institution called the Colonial Bank of Issue from 1850 to 1856. Although the bank resembles nothing close to New Zealand's current monetary system, it marks a unique time during New Zealand's early struggles as a British colony. This paper summarizes the evolution of the financial system during the colonization of New Zealand, including the colony's failed attempts at issuing paper money prior to the Bank of Issue. The bank was first proposed in 1847 during a desperate period when the colony had no real local note currency, only government debentures and foreign notes. The Colonial Bank of Issue opened its doors three years later in 1850 and began issuing its own notes in currency equal to the British pound. The six years of the bank's operations were plagued by low public confidence and poor management. However, the institution was the colony's first attempt at a national, government-issued currency and it proved to be an important part of New Zealand's history.

Following the summary of the Colonial Bank of Issue's history, the paper examines the statistics of the bank to document the bank's operations as well as its steady decline. The data come from government gazettes as well as from various New Zealand newspapers and parliamentary documents in the Papers Past Archive, a project of the National Library of New Zealand.

Colonization of New Zealand

The first recorded European to discover the archipelago known today as New Zealand was Abel Tasman on December 13, 1642. The Dutch explorer was in search of a southern continent in the hope of expanding trade prospects, but instead had an unpleasant interaction with the local people and quickly sailed away before even setting foot on land. The first inhabitants of New Zealand, the Māori, are believed to have migrated to the islands hundreds of years prior to the Europeans from present-day Hawaii (Swainson, 1859: 3-4). It wasn't until over 100 years after Tasman that Englishman James Cook landed on the shores of New Zealand on October 8, 1769 and became the first recorded European to set foot on the islands. The navigator had friendlier interactions with the locals and he, with his crew, was successful in mapping the country as well as cataloging plant and animal species (Wilson, 2005). From then on, the islands were on Britain's map.

Except for Christian missionaries and whalers, the land brought to light by James Cook was left relatively untouched by Europeans until 1839. British colonization was motivated by fear that if the British did not start inhabiting New Zealand, the French would soon get their foot in the door and claim the islands for themselves. In London, a joint stock company was formed, comprised of influential persons of all trades, with the purpose of colonizing New Zealand. The New Zealand Company purchased land from Māori on the southern point of the North Island, without regard to location or natural resources (Swainson, 1859: 74-79).

The creation of the New Zealand Company as well as their initial colonization of the islands prompted the British

government to formally establish a colony in New Zealand. William Hobson, a British Navy captain and colonial official, was given the duty of securing a treaty with the Māori, formalizing British sovereignty over the land. Formal British colonization was neither a simple nor a popular undertaking. Negotiating with the zealous and occasionally violent Māori proved to be a difficult task and gaining public approval for British rule over European settlers was another challenge, as many had emigrated to escape formal European government (Swainson, 1859: 79-81).

Hobson gathered Māori chiefs at Waitangi in an attempt to negotiate British suzerainty over of the islands. After heated discussion, a deal was reached between Hobson and many influential chiefs where sovereignty of New Zealand was given to the British monarch as long as Māori lands and customs were preserved. Shortly after the Treaty of Waitangi, signed on February 6, 1840, Captain Hobson claimed both the North Island and South Island to be under the British rule (Swainson, 1859: 81-83).

Before banks

The first bankin New Zealand opened in 1840. Before banks started conducting business there were other ways of exchanging commodities. Prior to the arrival of Europeans, Māori tribes would conduct trade with whalers who frequented the waters off of northern New Zealand. As trade increased, merchants would leave representatives to reside in small settlements in New Zealand that served as outlets for exchange. As a result, coin from New South Wales, America, and Spain was introduced into the land, although most trade occurred through bartering and exchange of goods. Tobacco, guns, ammunition, and rum became popular goods of exchange between the two groups. Not only was this a way for Europeans to trade with Māoris, but it was also a common way for Europeans to exchange goods with each other before the establishment of banks, or if a bank was not located nearby (Bedford, 1916: 19-28).

Along with barter and trade, certain notes were used as currency prior to the advent of banking in the colony. Some prominent whalers paid their crew in promissory notes instead of goods. The notes were widely accepted among New Zealand store owners. Crews would use the notes in New Zealand to buy goods and the notes circulated across the land. At the end of the whaling season, the merchants who issued the notes would send ships packed with goods to New Zealand. The bearers of whaler notes in New Zealand would then purchase goods from the merchant ships, using them as a sort of currency in exchange for commodities. Not only merchants but also some well-known storekeepers issued notes of their own. In the New Zealand province of Otago, for instance, it was common for store owners to issue their own notes, since Otago, in the far south, was the last province to see a bank open. The economy of early New Zealand functioned entirely off of promissory notes and trade, with almost no use of metallic coin prior to the opening of the colony's first bank in 1840 (Bedford, 1916: 24-28).

The Union Bank of Australia

The Union Bank of Australia first opened its doors on March 28, 1840 in Port Nicholson, as Wellington was then called. The bank was a London-based organization created to facilitate trade with Britain as well as local enterprise. The New Zealand Company, located at Port Nicholson, funded the bank as well as the Colony's first newspaper, *The New Zealand Gazette*. The first issue of the paper, published on September 6, 1839 featured a story on the Union Bank: "Bills on Sydney at 30 days sight will be issued at this office to the settlers… enabling the colonists to transmit their funds without deduction." The opening of New Zealand's first bank marked the beginning of notes being issued by a well-capitalized financial institution in the colony. The directors of the New Zealand branch of the Union Bank were George Samuel Evans, Edward Betts Hooper, and George Hunter, who all were or would become prominent in New Zealand's colonial history. The deposits in the bank by 1841 were £9,381, while the debts due to the bank amounted to £14,928 (Bedford, 1916: 36-39). (The currency unit was the

pound, equal to the British pound and not really distinct from it in law, as if New Zealand were simply a remote English county.)

In early 1848, the Union Bank opened a branch in Auckland (Bedford, 1915: 50). The first directors of the Auckland branch were John Campbell and J. J. Greenwood ("The Union Bank of Australia" n.d.). During the 1840s, Australia faced an economic depression. At a meeting in London, Union Bank officials described the cause of the depression: "prosperity had evidently induced an extension of speculative transactions and of commercial credit, which left the colonial community exposed to injurious operation of a reaction evidently hastened and increased by the effects of a deficient harvest" (Bedford, 1916: 51). Although New Zealand did not suffer through a similar depression, the Union Bank shrankoperations at the Port Nicholson and Auckland branches. The *New Zealand Spectator* published a report from the annual meeting of proprietors of the bank on January 16, 1847: "It has been stated in a previous report that the branches in New Zealand have been almost reduced to small exchange agencies. They have, therefore, yielded scarcely any profits during the past year" ("Union Bank of Australia" 1847). The business of the bank's New Zealand branches wasso limited that the branches published no reports or statements regarding operations from June 1842 until 1857 (Bedford, 1916: 53).

The New Zealand banking company

Around the same time as the Union Bank opened at Port Nicholson, another bank in New Zealand was beginning to be formed. On May 2, 1840, *The New Zealand Gazette* published an article about a local bank set to open in Kororareka, a town located in the Bay of Islands. After a public meeting, it was clear that the need for a banking institution was strong. The New Zealand Banking Company was formed shortly after with a capital of £50,000 broken up into 5000 shares, with 2000 shares set aside for potential investors living in Australia. Henry Thompson, an employee of the bank, was sent to Australia to find investors for the bank. In New South Wales, hewas met

with considerable demand for the shares. On September 1, 1840, the New Zealand Banking Company was launched at Kororareka (present-day Russell). The town, about 240 km north of Auckland, was the first permanent European settlement in New Zealand, and at the time was the capital of the colony. Upon opening, the capital and shares of the bank were increased to £100,000 and 10,000 respectively, with residents of New South Wales holding the most shares. The bank named James Clendon, Gilbert Mair, William Mayhew, Philo Perry, Daniel Pollen, John Scott, Henry Thompson, and Edward Williams as directors (Bedford, 1916:40-43).

The opening of the bank was praised by local newspapers, although some feared the directors of the bank would be easily manipulated by the government. The duties of the bank were simple: offer the colony a paper currency, lend to businesses to improve the well-being of the colony, and allow settlers to store money in its vaults. Promissory notes were commonly circulated all the way to Auckland due to that town's lack of a bank. After the seat of government was moved from Kororareka to Auckland, however, the New Zealand Banking Company opened a small branch in the new capital on August 20, 1841. A petition for the bank to be moved solely to Auckland was discussed but ultimately was not approved since a majority of shareholders in the company lived in Kororareka and Sydney. As Auckland grew and developed into New Zealand's largest city, the New Zealand Banking Company chose to keep its focus on the declining town of Kororareka, ultimately contributing to its failure (Bedford, 1916: 43-50).

Between the Union Bank Branch and the New Zealand Banking Company, the former proved to be the superior institution. Although the New Zealand Banking Company for a time had greater local business, that was only due to its location in the populous town of Kororareka. The Union Bank was far more established, with large branches in Australia and capital of £500,000. Compared to the Union Bank, the New Zealand Banking Company had a customer base with much less confidence in the establishment. The Union Bank's business soon grew larger than the New Zealand Banking Company's. After the New Zealand Banking Company's choice to stay

headquartered in Kororareka, the institution began a steady decline. Local newspapers reported that the bank ceased paying interest on current accounts and refused to service customers. Soon it was heard that its notes had been dishonored (gone unpaid) in New South Wales. Newspapers soon advised customers to take their money out of the New Zealand Banking Company. The banking company was plagued by the Australian depression, poor management, and low levels of capital. The final blow to the New Zealand Banking Company occurred in 1845, when a Māori attack destroyed Kororareka, forcing the dying institution to cease operations (Bedford, 1916: 46-50).

Government debentures

New Zealand's early years as a British colony werefinancially as well as politically turbulent. There were multiple issuers of currency and merchants' IOUs that circulated like currency, but even the two largest issuers, the Union Bank of Australia and the New Zealand Banking Company, proved inadequate. The latter ultimately failed, while the former suffered from an economic depression that was afflicting Australia. In 1843, the colony was in desperate need of a reliable currency and the newly appointed Governor Robert Fitz Roy sought to accomplish just that. FitzRoy took office with the colonial government £15,000 in debt from Captain Hobson's term. After a loan from Sydney came through, FitzRoy issued debentures to raise government funds to settle debts. The debentures acted as a debt instrument that allowed FitzRoy, to raise money by printing promissory notes to lenders. After the debentures caused a run on the New Zealand Banking Company, FitzRoy met with the Legislative Council and officially declared the debentures legal tender officially on May 16, 1844 with an ordinance. The Council approved £15,000 worth of debentures to be issued with 5 percent interest per year secured from a recently approved £15,000 loan from Sydney ("Debentures" 1844). The settlers were in such dire need of a currency that the majority accepted the government debentures at face value, although the notes were speculative at best (Bedford, 1916: 58-

65). The debentures seemed to work perfectly; the government needed money, and the colonists were desperate for a currency.

The British government thought differently, however. Under British imperial practice, colonies were not supposed to make significant changes in currency policy without imperial approval. The Secretary of State for War and the Colonies, Lord Stanley, wrote to Governor FitzRoy regarding the debentures: "measures should be taken at the earliest possible period for the redemption of the notes which you have issued the continued circulation of which renders hopeless any attempt to provide a sound circulating medium for the colony" (Bedford, 1916: 71). FitzRoy disregarded Stanley's imperativeremarks and continued issuing debentures. For a while, the Union Bank refused to accept the debentures as legal currency. FitzRoy found himself in a difficult position: his debenture policy, which was approved by his Legislative Council, suffered from oppositionby Britain. FitzRoy had already issued three times the number of debentures stated in his ordinance, with total debentures equaling £45,000.Once news got out of the over-issuance of debentures, his attempt at issuing a "currency" was officially a failure. The debentures were being exchanged at 20 percent below their face value. The colonists were furious and began a petition to remove FitzRoy from Office (Bedford, 1916: 70-76).The colonists were left with an irredeemable currency that was depreciating. Due to these shortcomings, Governor FitzRoy was replaced with Governor George Grey on November 18, 1845 (Bedford, 1916: 82-84).Grey was the governor of South Australia before being sent to New Zealand. The British government sent Grey with £15,000 to redeem the debentures issued by FitzRoy. Unfortunately, £45,000 worth of debentures needed to be redeemed. Grey redeemed one-fourth of the debentures in specie and exchanged the rest for irredeemable debentures (Matthews, 2003: 43). From the start of his first term as Governor of New Zealand, Grey fought an uphill battle. After the failure of the New Zealand Company, the suspension of activities of the Union Bank of Australia, and Governor FitzRoy's failed debenture program, Grey and the colonists of New Zealand were in desperate need of a reliable monetary system.

Fundamentals of the colonial bank of issue

The New Zealand government's three previous failures at administering or encouraging an adequate form of monetary exchange prompted the British to advise the colony's next course of action. The new Secretary of State for War and the Colonies, Lord Grey (Henry George Grey, later Earl Grey, and no relation to George Grey), suggested the establishment of a government bank of issue early in 1847. After New Zealand's latest blunder (the debenture note crisis) the secretary wanted a stable monetary medium for the colony. Following the Crown's suggestions, Governor Grey signed the Paper Currency Ordinance into New Zealand law on October 16, 1847.The ordinance read, "for the purpose of supplying the Colony of New Zealand with a paper currency, there shall be established therein by the Government thereof a Bank of Issue, to be called the 'Colonial Bank of Issue'" ("Paper Currency" 1847: 1).[1] The ordinance prohibited the issuing of notes by any private institution or individual other than the Union Bank. The bank was allowed to continue issuing its own notes; however, the number of notes issued was to be set by the governor. The ordinance stated that at an undetermined date the Union Bank would be forced to cease the issuance of its notes. This clause allowed a transition period for the Union Bank and the colony to move to the use of notes from the Colonial Bank of Issue ("Paper Currency" 1847: 1-5). The Paper Currency Ordinance was careful to mention that it would not be put into law until

[1] The ultimate ideological origin of the Colonial Bank of Issue has yet to be traced satisfactorily. In the 1840s, currency policy was a matter of vigorous public debate in Britain. High-level government officials were therefore expected to have knowledge of the subject, and some made contributions to the debate. Both Greys knew Colonel Robert Torrens, who was involved with the colonization of South Australia and was also a noteworthy economist. Torrens was one of the main advocates of the so-called Currency Principle, which held that the issuance of paper currency should be regulated so that the margin, changes in the supply of paper currency reflected changes in its gold banking. The Currency Principle influenced British laws of 1844 and 1845 that imposed a version of it on note issue in Britain. It is likely that the British laws influenced the thinking of colonial administrators on colonial currency questions, and possible that Torrens and other members of what in retrospect came to be called the Currency School had convinced one or both Greys before then.

approved bythe Imperial government, in order to avoid a controversy similar to that accompanying Governor FitzRoy's issuance of debentures. Although the ordinance was passed in 1847, the Colonial Bank of Issue, which was the direct result of the ordinance, did not open its doors until the middle of 1850. It should be noted that communication between New Zealand and London was only by sailing ship at the time, so it took months to send ordinances and to receive imperial approval or disapproval for them.

The ordinance established two branches of the Colonial Bank of Issue: one located at Wellington, and the other at Auckland, the two biggest towns in the colony. One manager per branch was appointed by the governor, with no limits to each manager's term. The operations of the bank were restricted to only the issue of notes in exchange for cash, and the return of notes in exchange for cash or specie ("Paper Currency" 1847: 1-2). Cash referred to the British currency. This implies that 1 New Zealand pound was equivalent to 1 pound sterling. With notes only being issued in exchange for cash, the bank backed all of its notes with an equal amount of specie or cash, again, another requirement of the ordinance to prevent a situation similar to FitzRoy's £45,000 worth of debenturesbeing backed by only £15,000. The ordinance stated that no notes issued by the bank wereto be for less than £1 and no notes would be issued in pence or shillings. Notes exchanged for cash at the bank were required to be charged to the bank's revenue account. Certain amounts of cash received in exchange for notes under the ordinance were required to be invested at the discretion of the bank manager and Governor. The interest built up from investments was required to be put towards paying off expenses of the bank. Managers of the Colonial Bank were required to keep records of statistics of the banks, such as notes in circulation and coin held by the branch. From their books, managers of the branches were to send weekly statements to the Colonial Treasurer, publish monthly statements in the *Government Gazette*, as well as yearly reports on the progress of the Bank of Issue. Failure to publish reports as well as exchange notes for cash or cash for notes would result in a fine of up to £500 to the manager –an amount that, as we

will see, exceeded his annual salary ("Paper Currency" 1847: 1-5).

Public opinion of the bank of issue

Both branches, at Wellington and Auckland, opened on June 3, 1850. The managers of the Auckland branch and Wellington branch, appointed by the governor, were Colonel Hulme and J.G. Thomas respectively (*Wellington Independent* 1850). Since the establishment of the bank (and even before the bank officially opened its doors), the institution faced criticism from various news sources. New Zealand newspapers questioned the legitimacy of the bank and the willingness of the public to accept another government currency after Governor FitzRoy's debenture debacle. One article in particular titled "Grey's Bubble Banking Company," published by the Auckland*Daily Southern Cross* on Friday May 31, 1850, just days before the bank's opening, stated:

From the universal disapprobation with which the attempt on the part of the Government to interfere with the currency and the commercial operations of private banking companies was regarded, and so strongly expressed at the time when the "Currency Ordinance" was before the Council… we had hoped that its authors and abettors had become fully satisfied of the absurdity of the attempt itself ("Grey's Bubble Banking Company" 1850).

The article further raised specific grievances such as thelack of need for another bank, the Union Bank being satisfactory. The author of the article was a firm believer that banking should be left to private institutions. The article questioned the public's acceptance of a new government note and the possibility of the bank becoming a profitless waste of colonial funds. It was one of many that offered strong criticism of the new institution.

Opinions on the Colonial Bank of Issue were not all negative however, as an article in the *Wellington Independent*, published on July 20, 1850, proves: "A Government paper currency is greatly preferable to the currency of private individuals… There is considerable profit, as is well known, attending the issue of

paper money, which is generally agreed should be a national, and not an individual gain." The article did express concern, but as long as managers of the banks were not corrupted by the ease of printing money (and thus accumulating wealth), then the establishment of a Bank of Issue was warranted. However, there was little faith that a greedy government was capable of investing the profits of issuing paper money in a way benefiting the colonists ("Lieutenant Grey" 1850). Newspapers of the time contained both positive and critical reviews of the Colonial Bank of Issue. Most, though, expressed low confidence in the success of the institution as well as the New Zealand Government itself.

Amendment to the paper currency ordinance

On July 31, 1851, an amendment to the Paper Currency Ordinance was passed by Governor Grey's government. The amendment repealed some clauses of the Paper Currency Ordinance, including a statement leaving the amount of cash in the vaults up to the discretion of each branch's manager and the remainder invested. The new act provided a more detailed course of action for dealing with cash received from the exchange of bank notes. After the passage of this most recent ordinance, one-third of the cash received in exchange for government notes was to be held in the banks' vaults while the other two-thirds were to be invested in public securities of Great Britain. The second clause of the amendment ordinance was directed towards the Union Bank of Australia's New Zealand offices. This section required the Union Bank to halt its issuing of notes on October 1, 1852, when the amendment officially became law. This amendment provided further detail to the ordinance of 1847. After over a year in operation, the branches of the Colonial Bank of Issue at Auckland and Wellington found that investing in British securities proved to be the most reliable and constant source of interest, making the banks able to pay off their costs of operation ("Paper Currency Amendment" 1851).

Parliamentary report

Following several condemning statements about the Bank of Issue by members of the Auckland Provincial Council, Mr. A. O'Neill and Mr. J. O'Neill, in late 1853, it came to the attention of the legislature that the bank's performance should be looked into ("Auckland Provincial Council" 1853). A committee was created with the purpose of determining "as to whether it be desirable to maintain the present Bank of Issue, or to make any and what alterations therein, or to substitute any and what Government Bank in lieu thereof" ("Report of Select Committee on Bank of Issue" 1854: 1). The group given this duty, the Select Committee on Bank of Issue, reported to the New Zealand House of Representatives on July 28, 1854. Their report stated that the Auckland Bank was much worse off than the Wellington Bank. In Auckland, transactions for the month of June 1853 totaled £6058. Of that number, only £355 of transactions were conducted by the general public, while the remaining £5703 of transactions were completed by the Union Bank and Colonial Treasurer. Wellington, on the other hand, had a much greater public participation and trust in the bank. Notesin circulation at Wellington were nearly five times as much as Auckland ("Report of Select Committee on Bank of Issue" 1854: 2).

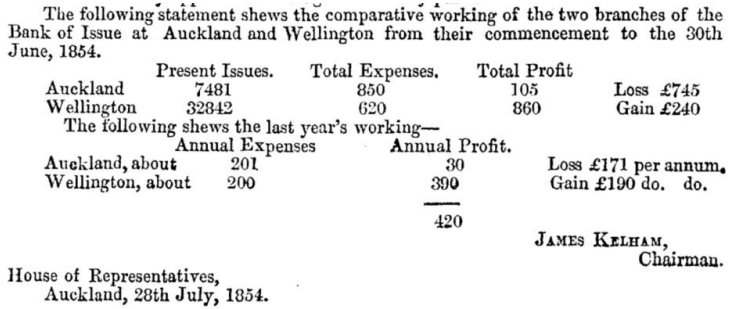
Overall, the report termed the Bank a failure. The reasons were the lack of profits, the experimental nature of the bank being unfit for such a young colony, the amount of currency in circulation being limited to the amount of gold in the colony, and the low circulation and unexpansive nature of the Colonial Bank's notes. The committee recommended that the Colonial Bank of Issue be closed. The report was the first formal statement regarding the bank's lackluster performance and serves as a marker for the beginning of the end of the bank. Following the report, the Colonial Bank of Issue began a steady decline until it was ultimately put to rest in July of 1856 ("Report of Select Committee on Bank of Issue" 1854: 2-3).

Operationand statistics

Expenses and revenue

Public opinion of the bank was poor when the bank first began conducting business, and it remained poor as more and more statistics of the bank's performance became public knowledge. After the bank's first six months in operation, the expenses from the Auckland branch totaled roughly £202, consequently the bank brought no profits to the colony. Similar poor results were predicted for the Wellington Branch (*Wellington Independent* 1851). Contributing to the criticism was the circumstance that bank managers and the Colonial Treasurer failed to publish a report on the annual statistics of the bank by March 1, 1851 ("A Governor Wanted" 1851). As time progressed, however, the bank did producesome positive numbers. Initially the profits of the Bank of Issue werenil, but in a report published December 2, 1853, the bank surprised its critics. For 1853, the bank brought in £490 of revenue, to produce a profit of £170. The profitswere said to have come only from the Wellington Branch, the more successful of the two. Despite the profit, criticism continued. A story in the *Daily Southern Cross* dated December 2, 1853 calls the profit a farce, believing that it was the work of the Colonial Treasurer exchanging the government's gold for notes in order for the bank to appear profitable ("Colonial Bank of Issue" 1853).

The Auckland branch of the Colonial Bank of Issue was a millstone. From the start, Auckland underperformed and contributed to negative press of the bank. A perfect example of this is in a report published by theSelect Committee on Bank of Issue on July 28, 1854.



The following statement shews the comparative working of the two branches of the Bank of Issue at Auckland and Wellington from their commencement to the 30th June, 1854.

	Present Issues.	Total Expenses.	Total Profit	
Auckland	7481	850	105	Loss £745
Wellington	32842	620	860	Gain £240

The following shews the last year's working—

	Annual Expenses	Annual Profit.	
Auckland, about	201	30	Loss £171 per annum.
Wellington, about	200	390	Gain £190 do. do.
		420	

JAMES KELHAM,
Chairman.

House of Representatives,
Auckland, 28th July, 1854.

Figure 1. *Excerpt from a legislative report showing the profits of the two branches of the Colonial Bank of Issue("Report of Select Committee on Bank of Issue" 1854: 3).*

From commencement to June 30, 1854, the Auckland branch's net loss was more than three times larger than Wellington's net gain. The poor performance of the Auckland branch erased any profits of the Wellington branch. This is a common trend with all statistics of the Bank of Issue. Wellington had a larger number of notes in circulation, coin in chest, and investments as well. At the time of this publication, in 1854, the population of the Province of Auckland was 11,919 while the Province of Wellingtonhad only 6,231 European inhabitants ("Blue Book of Statistics" 1854).[2] Auckland was also the seat of government in New Zealand during the Colonial Bank's existence. Despite Auckland being the center of government and supporting a much larger population, the Auckland branch of the Colonial Bank of Issue lagged compared to Wellington. The Auckland branch suffered from a customer base with low confidence in the bank: "The public of Auckland never appear to have been favorably disposed towards the circulation of this paper, or inclined to use it generally for their trading purposes, preferring the gold coinage." ("Report of Select Committee on Bank of Issue" 1854: 2). At this point in time, Auckland's two main customers were the Union Bank and the Colonial Treasurer, with almost no transactions from the general public.

[2] Starting in 1853, New Zealand was divided up into six provinces: New Plymouth, Auckland, and Wellington on the North Island, and Nelson, Canterbury, and Otago on the South Island.

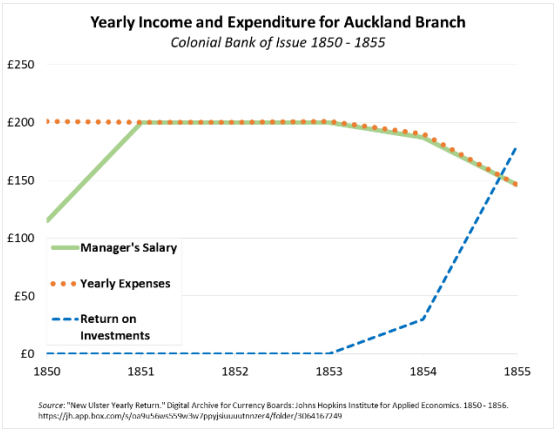


Figure 2. *Yearly income and expenditures for the Auckland branch of the Colonial Bank of Issue from 1850 to 1855, from statements in the New Ulster Government Gazette.*

In the graph, it is important to see that after the first year of operation, when were certain costs of setting up, the only expenses for the Auckland branch consisted of the manager's salary. In the final years of the bank's existence, expenses declined while return on investments increased. I only found data for the Auckland branch.

Salaries

Employee Salaries
The salaries of employees of the Colonial Bank of Issue were as follows:
Auckland Manager
1852 Salary: £200
1855 Salary: £150
Wellington Manager
1852 Salary: £300
1855 Salary: £150
Wellington Bank Clerk
1851 Salary: £125
1855 Salary: £170

Figure 3. *Salaries for positions at New Zealand's Colonial Bank of Issue. Salaries are reported for two different years to show the change over the course of the bank's operations.*

Sources: Papers Past: The National Library of New Zealand 1850 – 1856. Web. 7 July 2017. [Retrieved from].

Investments

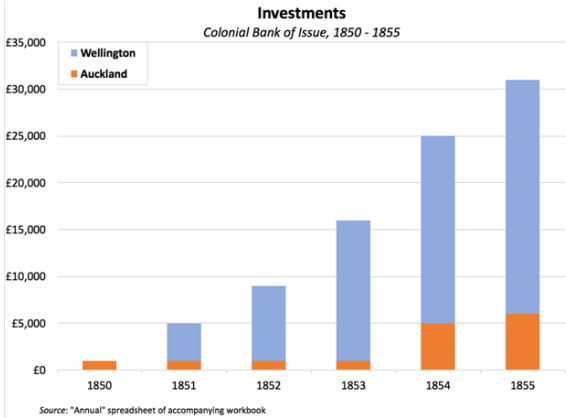


Figure 4. *Investments by the Colonial Bank of Issue, primarily in British public securities.*

Following the Amendment to the Paper Currency Ordinance in 1851, both branches of the Colonial Bank of Issue invested two-thirds of their cash on hand in British public securities. In the Select Committee on Bank of Issue's report, it was stated that Auckland had invested £1,000 while Wellington had invested £15,000 in British public funds. Wellington was reported to soon increase its investment to £20,000, meaning that the investment by both branches amounted to £21,000 and the annual interest earned was close to £600 per year ("Report of Select Committee on Bank of Issue" 1854: 2). Late in 1854, the Auckland branch increased its investments to £5,000, and to £6,000 in 1855.

Note Circulation and Coin in Chest: General Remarks

During the Colonial Bank of Issue's tenure, the managers of each bank were required to publish monthly statistics in the Government Gazette ("Paper Currency" 1847). I was able to view some issues of the *Government Gazette*, and New Zealand newspapers often published the statistics. The combination of these sources provided data for this paper. The numbers published by the bank on a monthly basis included: the number of government notes in circulation (divided up into notes £5 and up, and under £5) and the amount of coin held in each bank's vault the same day (divided up into gold and

silver). The graphs below show the number of notes in circulation and coin held for each branch of the bank, as well as for both branches combined.

Auckland Branch

The Auckland branch of the Bank of Issue started with £1309 worth of notes in circulation and £1309 worth of gold and silver coins in its vault at the end of its first month of operation on June 29, 1850. Notes in circulation generally increased over time, while the growth of coin in chest was not as strong. For the first four of its six years in business, the bank's coin closely followed the number of notes in circulation. According to the Paper Currency Ordinance of 1847, the bank was only allowed to issue notes in exchange for coin or cash and the bank had to surrender specie or cash on demand when presented with a bank note. Following this principle, it makes sense why the notes and coins moved together until late 1854. It should be noted that coin did not exactly equal notes in circulation since paper currency was also accepted for the exchange of bank notes, and a majority of the bank's cash was tied up in British investments. In late 1854 a sharp drop in the amount of coins in Auckland's chest occurred. Around that time the Report by the Select Committee on Bank of Issue was published, and the bank began its decline. The sharp drop in coins could show the increased number of individuals exchanging bank notes for specie, causing the amount of coins in the bank's chest to drop. However, around this time, the Auckland branch increased investments by £4,000, which would explain the almost identical £4,000 drop in coin from the bank's vault.

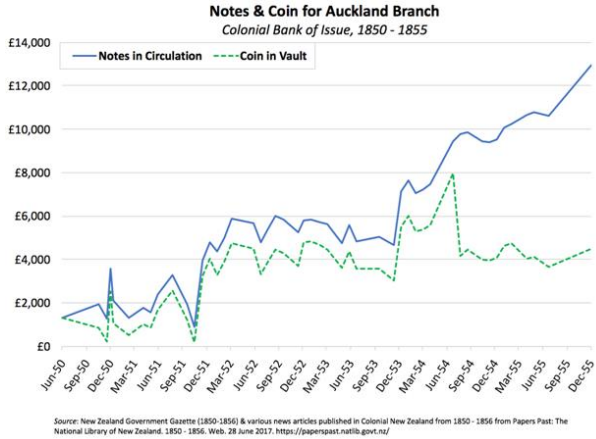


Figure 5. *Notes in circulation and coin in the vault for the Auckland branch of the Colonial Bank of Issue from June 29, 1850 to December 31, 1855.*

Wellington Branch

The Bank at Wellington had a much higher volume of notes and coin compared to the Auckland branch. With Auckland being the larger town, the increased volume in Wellington signals higher confidence in the Wellington Bank by its customers. Notes in circulation at Wellington ranged from £2,403 after its first month of business and peaked at £40,007 on February 23, 1856. Coin in the bank's chest ranged from £907 to its height of £17,566 on January 6, 1855 as well. Both statistics showed upward trends in growth, with notes in circulation increasing at a higher rate. The Wellington branch had a much smaller proportion of coin to notes than Auckland, although it should be noted that Wellington also had much more invested in British securities. Both notes in circulation and coin saw a sharp increase in early 1854, while coin in the bank slightly decreased shortly after. Both Wellington and Auckland's decreasesin coin started midway through 1854. As previously stated, this could have been caused by a large number of settlers exchanging notes for specie on demand following the Select Committee on Bank of Issue's report recommending the shutdown of the bank around that time. However, it is also

likely that the decrease in coin corresponds to an increase in investments by the Wellington branch.

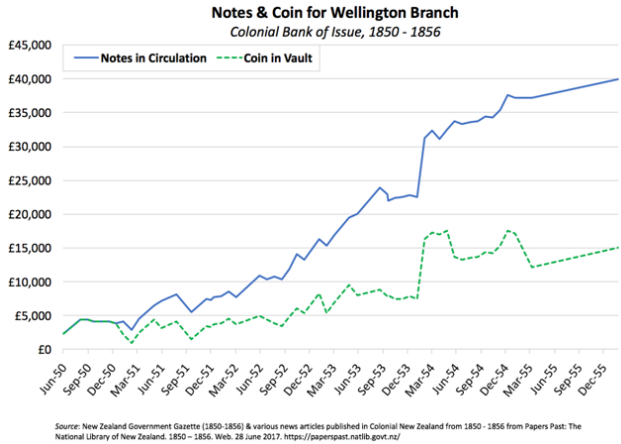


Figure 6. *Notes in circulation and coin in the vault for the Wellington branch of the Colonial Bank of Issue from June 29, 1850 to February 23, 1856.*

Both Branches Combined

This graph reflects the two previous graphs of each branch of the Colonial Bank of Issue, although statistics for the combined Bank of Issue run a few months longer than the monthly reports for the separate branches of the bank. The notes in circulation from the Bank of Issue ranged from a low of £3,712 after the bank's first month of operations to £54,085 in May of 1856. The banks coin peaked on April 1, 1854 at £22,655, after reaching a low of £1,433 in 1851. Like its two branches, the number of notes in circulation increased over time–much different from the bank's coin reserves. Coin in the bank peaked in April 1854 and growth of the supply stagnated after asmall drop and recovery in mid-1854. The last year of the bank's existence shows a slump in both notes and coin, as the inevitable became clear and notes were promptly exchanged on demand for the bank's coin reserves. The graph on page 16 covers the entire history of the bank from the first published statement in June 1850 to its last in July 1856.

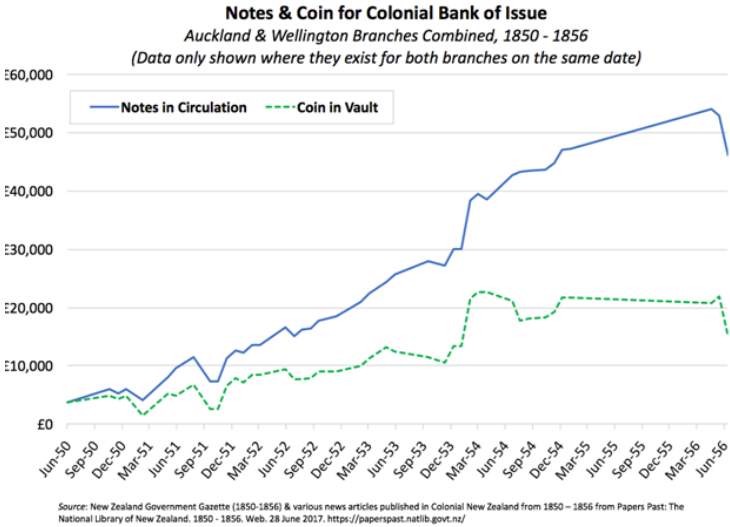


Figure 7. *Notes in circulation and coin in the vault for both the Auckland and Wellington branches from June 29, 1850 until the last monthly report on July 12, 1856.*

Orthodoxy tests for the colonial bank of issue

The Colonial Bank of Issue was intended to be a currency board. Currency boards are anchored to a foreign currency or commodity and have a fixed exchange rate with the anchor currency. Notes and coins issued by a currency board are convertible on demand into the anchor currency. Typical currency boards have foreign reserves equal to or slightly greater than their monetary liabilities. Foreign reserves are commonly held in the form of interest-earning securities from the anchor country. Currency boards essentially allow a country to operate with minimal monetary policy effort, making them a smart choice for developing nations, where institutions of governance are often weak (Hanke & Schuler 1994/2015: 75 – 76).

Three tests are performed on the Colonial Bank of Issue to determine the orthodoxy of the currency board. Data for the tests came from issues of the *Government Gazette* as well as various newspaper articles from the National Library of New Zealand's Papers Past archive. For some months, I inferred

items on the balance sheet from the fact that assets must equal liabilities and a knowledge of the missing items in other months. In particular, the Colonial Bank of Issue only held British securities in multiples of £1,000 for all months that have data, and holdings only increased, neverdecreased so for the missing months I assumed that the holdings remained level or increased in round amounts. It was possible to fill in many months, though some still have no data at all. The accompanying spreadsheet workbook gives the details.

Test one: Domestic asset and foreign asset ratios

The first test for currency board orthodoxy focuses on domestic and foreign asset ratios –specifically, the ratio of foreign assets to total assets as well as foreign assets to the monetary base. These calculations were also performed on domestic assets. The foreign assets of the Colonial Bank of Issue consisted of all coin held by the bank as well as investments in British securities. The Colonial Bank of Issue held British coins, which are counted as foreign assets since like the British securities the bank held, they were issued by a non-New Zealand body.

Orthodox currency boards typically have net foreign asset (NFA) ratios close to 100 percent, since foreign reserves are needed for convertibility of home currency to anchor currency on demand. The data show that except in 1855, when figures for the larger Wellington branch are not available, net foreign assets as a share of total assets and of the monetary base were close to 100 percent. The comparatively low ratio for the Auckland branch in 1855 is the result of its holdings of notes from the Wellington branch, which are domestic assets but which on a consolidated basis would cancel out if Wellington data were available.

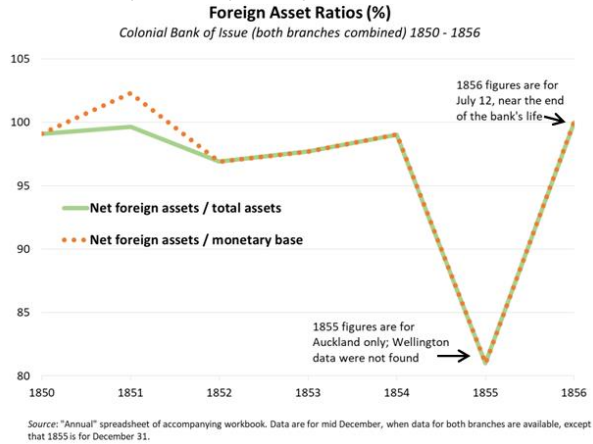


Figure 8. *Net foreign assets as a share of total assets and net foreign assets as a share of the monetary base for the combined branches from 1850 – 1856 (except Auckland only for 1855).*

Test two: Reserve pass-through

The reserve pass-through test measures the year-over-year change in the monetary base divided by the year-over-year change in net foreign reserves. The monetary base is notes in circulation in mid-December of each year, the date closest to year end for which I was able to find statements for both branches of the bank. Net foreign reserves arecoin held bythe bank plus the amount of money invested by the Colonial Bank of Issue in British securities.

Orthodox currency boards in principle should have reserve ratios near 100 percent, although because of various accounting factors, ratiosbetween 80 to 120 percentare good enough to show orthodoxy (Hanke, 2008: 280). The ratio for the Colonial Bank of Issue is close to 100 percent from 1850 to 1854, when data are available for both branches. In 1855, when data are available only for Auckland, the ratio drops sharply. Data for July 1856 are again for both branches combined, but the ratio is even lower and could be related to the liquidation of the bank. It seems reasonable to infer that by this measure the Colonial Bank of Issue was orthodox at least for most of its existence and possibly at the end as well.

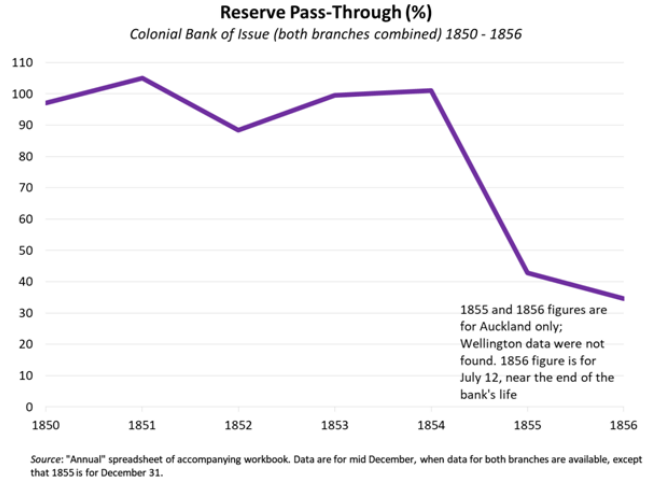


Figure 9. *The reserve pass-through ratio is measured by the year over year change in monetary base divided by the year over year change in net foreign reserves.The figure for 1850 is the change from late June, the first data, to mid-December. Figures for 1855 and 1856 are for Auckland only.*

Test three: Changes in monetary base and net foreign assets

The final test measures the absolute change in both the monetary base and net foreign assets by year. Orthodox currency boards have a strong correlation between these two measurements, meaning that when monetary base increases or decreases, net foreign assets also increase or decrease (Hanke, 2008: 280).

The data indicate that the absolute changes in net foreign assets and in the monetary base moved together very closely, with a correlation coefficient of 0.997. The data again indicate that the Colonial Bank of Issue behaved like an orthodox currency board.

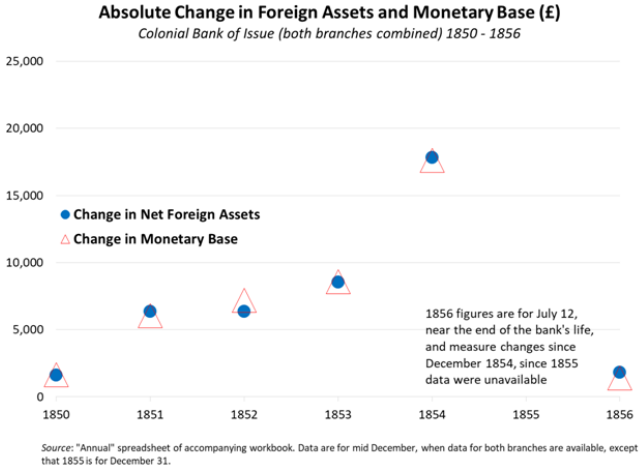


Figure 10. *Absolute change in monetary base and net foreign assets for the Auckland branch of the Colonial Bank of Issue 1851 - 1855. Figures for 1850 measure changes from late June, the first data, to mid-December. Figures for 1856 measure changes since 1854.*

The winding-up actand bank paper currency act

After a year of speculation that the New Zealand legislature would close the Bank of Issue and several months of decline in its note circulation, on July 7, 1856, the New Zealand legislaturepassed an ordinance allowing other institutions to begin issuing notes again. The ordinance gave the governor the power to allow any banking institution to issue promissory notes redeemable on demand, thus relieving the Colonial Bank of Issue of its duties as the sole note issuer in the colony. The ordinance specifically stated that "the Joint Stock Company or Corporation now carrying on the business of a banker in New Zealand under the style of 'The Union Bank of Australia,' may lawfully issue and circulate within the Colony the promissory notes of the Company payable to bearer on demand" ("Bank Paper Currency Act" 1856). Weeks later, on July 29, 1856, the legislature passed an act dissolving the Colonial Bank of Issue. The Winding-Up Act called for the redemption of all outstanding notes, taking the notes of the Bank of Issue out of circulation. The stocks and investments of the bank were ordered to be liquidated and put towards paying off expenses of the bank. Any surplus of funds was required to be returned

to the government of New Zealand. The act gave the Governor power to contact private banking companies to contract with the government as well as invest surplus funds from the Bank of Issue in colonial and government securities. The Winding-Up Act officially ended the dying Colonial Bank of Issue. After over a year of discussion over the fate of the bank, its life was ended and accounts settled in one declaration ("New Zealand Colonial Bank of Issue Winding-up" 1856).

After the colonial bank of issue: Conclusion

After the demise of the Colonial Bank of Issue by means of the Bank Paper Currency Act, private banks took advantage of the open market to set up shop in New Zealand. The Union Bank was given the authority to issue notes, joined by the London-based Oriental Bank on August 3, 1857 (Bedford, 1915: 121). Until 1861, The Union Bank and Oriental Bank were the only note issuers in the colony. However, following the discovery of gold on both the North Island and the South Island during the 1860s, many more banks began issuing notes. The Bank of New Zealand, the Bank of New South Wales, the National Bank of New Zealand, and the Colonial Bank of New Zealand all joined the note issuing club shortly after the gold discovery (Matthews, 2003: 43-44).

The Colonial Bank of Issue was an institution before its time. The idea of a monetary authority institution did not gain traction in New Zealand until decades later (Matthews 2003: 43). The Colonial Bank of Issue proved to be a poorly timed experiment plagued by harsh criticism fromlocal newspapers. Many settlers believed that bank was only a means by which the government reaped profits, and believed it created little benefit for the common man (Bedford, 1915: 94). In reality, the Bank of Issue was a potentially innovative idea, but it was enacted at the wrong time. Following the colony's debenture crisis, colonists had little faith in the government which transitioned over to little faith in the bank. In addition to this, the banks two offices did little to serve the spread-out population of the colony and thus resulted in its short six-year life. The failure of the Bank of Issue had nothing to do with the

fundamental ideas of the bank, but was caused by a colonist population with little confidence in the bank as well as a young, inexperienced government.

Appendix

A. An accompanying spreadsheet contains data from the Colonial Bank of Issue

B. *Legislation Mentioned in the Paper*

Treaty of Waitangi	February 6, 1840
Debentures Act of 1844	May 18, 1844
Paper Currency Ordinance	October 16, 1847
Amendment to Paper Currency Ordinance	July 31, 1851
The Bank Paper Currency Act	July 7, 1856
The New Zealand Colonial Bank of Issue Winding-up Act	July 29, 1856

C. *Note from the Colonial Bank of Issue*

Figure 11. *A cancelled one pound note from New Zealand's Colonial Bank of Issue. The note is signed by the bank's manager and was issued on January 25, 1856. The note can be found at the Auckland Museum in Auckland, New Zealand ("Banknote" 1856).*

References

Bedford, H.D. (2017). History and practice of banking in New Zealand. Unpublished Doctor of Letters thesis, University of Otago. [Retrieved from].

Cadogan, B. (2014). A Terrible and Fatal Man: Sir George Grey and the British Southern Hemisphere. Victoria University of Wellington: Treaty of Waitangi Research Unit. [Retrieved from].

Grey, E. (1853). The colonial policy of Lord John Russell's administration. V.2. Harvard College Library. [Retrieved from].

Hanke, S.H. (2008). Friedman: Float or Fix?, *Cato Journal*, 28 (2), 275-285.

Hanke, S.H., & Schuler, K. (1994). *Currency Boards for Developing Countries: A Handbook*. ICS Press.

Hargreaves, R.P. (1972). *From Beads to Bank Notes*. Dunedin, New Zealand: John McIndoe.

Krus, N., & Schuler, K. (2014). *Currency Board Financial Statements,* Johns Hopkins Institute for Applied Economics, Global Health, and Study of Business Enterprise. December. [Retrieved from].

Matthews, K. (2003). The legal history of money in New Zealand. *Reserve Bank of New Zealand Bulletin,* 66(1), 40-49.

Schuler, K. (1999). Currency Boards. Ph.D. dissertation, George Mason University. [Retrieved from].

Swainson, W. (1859). New Zealand and its colonization. Cornell University Library. [Retrieved from].

Wilson, J. (2005). European discovery of New Zealand. *Te Ara: The Encyclopedia of New Zealand*. [Retrieved from]. 2005. Web. 5 July 2017.

Papers Past, cited below numerous times, is a newspaper and parliamentary paper archive of the National Library of New Zealand. Government Gazettes (New Ulster, New Munster, and New Zealand) that were able to be accessed provided official statistics from the Colonial Bank of Issue. The Digital Archive on Currency Boards at the Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise contains many pages from official gazettes including information about the Colonial Bank of Issue.

"A Governor Wanted." Papers Past Archive: *Daily Southern Cross*. March 11, 1851. Web. 8 July. [Retrieved from].

"Auckland Provincial Council." Papers Past Archive: *New Zealander*. November 5, 1853. [Retrieved from]. Web. 8 July 2017.

"Auckland Provincial Council." Papers Past Archive: *Daily Southern Cross*. November 25, 1853. [Retrieved from]. Web. 8 July 2017.

"Bank Paper Currency Act." New Zealand Colonial Government. July 7, 1856. [Retrieved from]. Web. 9 July 2017.

"Banknote." Auckland Museum: Collections Online. January 25, 1856. [Retrieved from]. Web. 4 July 2017.

"Blue Book of Statistics"Archives New Zealand.1854. [Retrieved from]. Web. 31 July 2017.

"Colonial Bank of Issue." Papers Past Archive: *Daily Southern Cross*. December 2, 1853. [Retrieved from]. Web. 8 July 2017.
"Colonial Bank of Issue." Papers Past Archive: *New Zealander*. June 1, 1850. [Retrieved from]. Web. 6 July 2017.
"Debentures." New Zealand Colonial Government. May 18, 1844. [Retrieved from]. Web. 5 July 2017.
"Grey's Bubble Banking Company." Past Papers Archive: *Daily Southern Cross*. May 31, 1850. [Retrieved from]. Web. 5 July 2017.
"Lieutenant Grey." Papers Past Archive: *Wellington Independent*. July 20, 1850. [Retrieved from]. Web. 5 July 2017.
"New Zealand Colonial Bank of Issue Winding-up." New Zealand Colonial Government. July 29, 1856. [Retrieved from]. Web. 9 July 2017.
"New Ulster Yearly Return." Digital Archive for Currency Boards: Johns Hopkins Institute for Applied Economics. 1850 - 1856. [Retrieved from]. Web. 31 July 2017.
"Paper Currency." Colonial Government of New Zealand. October 16, 1847. [Retrieved from]. Web. 6 July 2017.
"Paper Currency Amendment." Colonial Government of New Zealand. July 31, 1851. [Retrieved from]. Web. 6 July 2017.
"Report of Select Committee on Bank of Issue." Papers Past Archive: Parliamentary Papers. January 1, 1854. [Retrieved from]. Web. 8 July 2017.
"The Nelson Bank." The Prow New Zealand. October 19, 2010. [Retrieved from]. Web. 24 September 2017.
"The Union Bank of Australia." Victoria University of Wellington Library. n.d. [Retrieved from]. Web. 5 July 2017.
Wellington Independent. Papers Past Archive: *Wellington Independent*. June 14, 1851. [Retrieved from]. Web. 8 July 2017.
Wellington Independent. Papers Past Archive: *Wellington Independent*. May 15, 1850. [Retrieved from]. Web. 7 July 2017.
"UK Parliamentary Papers." U.K. Parliamentary Papers: ProQuest Database. [Retrieved from]. Web. 24 September 2017.
"Union Bank of Australia." Papers Past Archive: *New Zealand Spectator and Cooks Strait Guardian*. January 16, 1847. [Retrieved from].

7 Evaluating the Fijian board of commissioners of currency

David *Tammaro*

Introduction

The sovereign nation of Fiji is located in Oceania, an island group in the South Pacific Ocean 2100 kilometers north of New Zealand and 3000 kilometers northeast of Sydney, Australia. Fiji in its entirety is comprised of 332 islands, 110 of which are inhabited. Evidence suggests that Fiji has been inhabited for close to 3500 years, initially by the Melanesian people. First encounters with the Europeans came in 1643, when Dutch explorer Abel Tasman explored the Fijian islands of Vanua Levu and Taveuni. During the early 19th century, Europeans were the first to bring money to Fiji via bartering goods for sandalwood and bêche-de-mer (sea cucumber). The 19th century expansion of European colonialism to encompass most of the world outside of the Americas included Fiji. The United Kingdom passed by a first opportunity to annex Fiji in 1852, but did so in 1874 in connection with a financial settlement of the king's debts to the Australian-based Polynesia Company.

The banking industry in Fiji dates back to May 1868, when the Polynesia Company was granted a monopoly on banking

rights within Fiji by King Cakobau in return for paying off debts to a U.S. citizen in Fiji. Fiji did not have an active local banking scene, however, until the establishment of the Fiji Banking and Commercial Company five years later. Fiji Banking was only local in an operational sense at this time, because the bank was headquarteredin Auckland, New Zealand. The bank received its Fijian charter on August 19, 1873, and opened the first physical bank office in Fiji's history on December 3, 1873, in the then capital Levuka. Local merchants grew dissatisfied with the local bank, so in July 1876, Fiji Banking's directors accepted a takeover offer and the Bank of New Zealand opened in Fiji. By 1901, the Bank of New South Wales had become the bankers for the Sydney-based Colonial Sugar Refining Company. The company had extensive business in Fiji, where sugar had become the main export. The Bank of New South Wales was offered banking business in Fiji in 1901, which they accepted. These two banks both issued notes. They were joined in 1908 by the non-note-issuing Government Savings Bank (which has since been renamed to the National Bank of Fiji). The table below shows the other banks that commenced operations during the period we are examining. Fiji's currency was patterned on the British nondecimal model, with one pound equal to 20 shillings or 240 pence.

Table 1. *Commercial banks in Fiji, by country of incorporation and establishment date*

Bank (present name, if different)	Head Office	Local Establishment
Fiji Banking and Commercial Company (now Bank of New Zealand)	New Zealand	July 17, 1876
Bank of New South Wales (now Westpac Banking Corporation)	Australia	August 12, 1901
National Bank of Fiji	Fiji	1908
Australia and New Zealand Banking Group	Australia	April 12, 1951
Bank of Baroda	India	July 5, 1961
Barclays Bank International (now Barclays Bank)	UK	1972

Establishment of the Fiji currency board

The Board of Commissioners of Currency was established on November 18, 1913 with the establishment of the Government Currency Notes Ordinance, although it did not commence operations until approximately a year later. The board consisted of three persons, who initially were the Colonial Secretary and Receiver General of the Colony plus one other person appointed by the Governor. (The financial statements of the Commissioners simply list their names, not their positions; I assume but am not certain that the third appointee was a Fiji Treasury official.) The Commissioners had the legal power to issue notes in exchange for gold coin or notes previously issued. The coin received in exchange for currency notes formed the Note Guarantee Fund. A fund was to be held in the colony by the Commissioners of the board for meeting the payment of the notes. Initially at least two-thirds of its assets had to be held in gold, although the British Secretary of State for the Colonies could reduce the share to as little as one-half if the Governor of Fiji convinced him that such a reduction was safe. The remainder, the so-called "investment portion," could be invested in securities of any part of the British Empire except Fiji or in such securities as approved by the Secretary of State for the Colonies. Apparently the latter clause was the provision that decades later did allow investment in local securities, on the grounds that the Secretary of State now approved them. There was also to be a Depreciation Fund equal to 10 percent of the value of the investment portion, accumulated at a rate of 1 percent a year.

The colonial annual report and the other published sources I consulted do not state the rationale for passing the law and establishing the Board of Commissioners of Currency, but it seems likely that Fiji was exemplifying a common trend in monetary thinking at the time. The belief had developed that note issuance should be carried out by the government, rather than by privately owned banks, for two main reasons. The first was that a government monopoly could generate revenue for the government. The second was that government note issue

was considered safer, because banks often fail eventually, while governments do not cease to exist even if they go bankrupt.

British coins were the only coins in circulation in Fiji at the time the currency board began. It was fairly common for smaller British colonies to use British coins if their local unit of account was equal to the pound sterling. Fiji's first local coinage of pennies and shillings was introduced in 1934 by the Commissioners of Currency, and the coins remained in circulation until 1969. The denominations of currency used at this time were pennies, halfpennies, sixpences, shillings, and two shillings. In 1936, a one penny coin was minted, and in 1947 Fiji began minting 2-sided nickels and three-penny "bits." These coins were minted until 1967. In 1969, Fiji changed to a decimal currency in which Fijian $2 = Fijian £1. The currency consisted of 1¢, 2¢, 5¢, 10¢, and 20¢ coins, and $0.50, $1, $2, $5, $10, and $20 notes. The $0.50 and $1 notes were changed to coins shortly after. Later, $50 and $100 notes were introduced in 1995 and 2007, respectively. The issuance of 1¢ and 2¢ coins ceased in 2008, long after the currency board period. Currently Fiji's currency structure is comprised of 5¢, 10¢, 20¢, 50¢, $1, and $2 coins, and $5, $10, $20, $50, and $100 notes.

Later sections describe certain changes in the operating procedures of the Commissioners of Currency.

The exchange rate changes of the 1930s, 1960s, and 1970s

Fiji is among the few currency boards to have altered its exchange rate against its anchor currency. It did so more than once. A review of the circumstances involved helps explain why the changes occurred.

When the currency board period started in Fiji, the Fijian pound was fixed to the pound sterling at par (Fijian £1 = UK£1). This exchange rate was kept in place from December 4, 1914 to December 17, 1929. The Government Currency Notes Ordinance of November 18, 1913 established the currency board and provided the currency board's notes to be redeemable in gold coin. But before the board began operations, World War I broke out, causing the United Kingdom to suspend the gold

standard in August 1914. Banks in Fiji maintained parity between the Fijian pound and sterling. It does not appear that the currency board exchanged any notes for gold while the UK was off the gold standard, which lasted until May 1925. The pound sterling remained on the gold standard until September 19, 1931, when the UK chose to abandon gold rather than continue with the deflation arising from the monetary pressures of the Great Depression.

Fiji's official exchange rate remained at par with sterling from December 18, 1929 to September 8, 1932, but in practice the exchange rate was a clean float parallel to the Australian pound until January 1931, and then parallel to the New Zealand pound. Both currencies were depreciating against the pound sterling. The two commercial banks, the Bank of New Zealand and the Bank of New South Wales, managed the exchange rate, and their actions were influenced by the currency depreciations in their home countries (Knapman 1987: 109-119).

From September 9, 1932 to November 15, 1932 the exchange rate returned to Fijian £1 = UK£1. The Currency Notes Ordinance of November 1, 1933, section 6(3), gives the impression that the exchange rate returned to parity with the pound sterling. From November 16, 1932 to December 13, 1932, the new exchange rate came to be Fijian £1 = £1 sterling. On October 21, 1932, the British Colonial Office instructed the Board of Currency Commissioners to cease the issuance of notes against drafts in pounds sterling, which was technically illegal under Fijian law. In response to pressure from the British government to end the depreciation of the Fijian pound, the Commissioners of Currency announced that henceforth they would only issue notes in exchange for 20 percent gold and 80 percent pounds sterling, and that from December 1, 1933 they would only issue notes in exchange for gold (Board of Currency Commissioners, announcement of 15 November 1932, cited in Knapman, 1987: 112). It is unknown when the exchanging of notes only for gold in Fiji ceased. Certainly, the board would have stopped this exchange by 1939 when World War II began, because all British colonies adopted exchange control measures similar to those of the UK. Most likely, it happened in 1933 with the pure sterling exchange standard described below.

For the short period from December 14, 1932 to March 28, 1933, Fiji linked its currency to the New Zealand pound because the British colonial officials and Fiji's Legislative Council feared that the Commissioners of Currency were creating a shortage of notes that would hinder the record sugar harvest. These two groups overrode the currency board by temporarily linking to New Zealand's currency, and the exchange rate became Fijian £1 = New Zealand £1. The currency board was allowed to issue notes against drafts on New Zealand currency for a temporary period of six months (Knapman, 1987: 113). On January 20, 1933, the New Zealand pound was devalued from New Zealand £1.11 = UK£1 to New Zealand £1.25 = £1 sterling, making the New Zealand pound again equal to the Australian pound. The Fijian pound followed.

Starting in March 29, 1933 and continuing until November 27, 1967, the exchange rate in Fiji was Fijian £1.11 = £1 sterling. On instructions from the British Colonial Office, Fiji adopted the pound sterling as the anchor currency, at the cross rate with the New Zealand pound in effect before January 20, 1933. The reason for adopting the pound sterling rather than the New Zealand pound was a desire by influential interests in Fiji to avoid the risk of further devaluations of the New Zealand pound against the pound sterling. The currency board was allowed to issue notes against drafts on pounds sterling.

In the second half of 1957 the Commissioners of Currency began to hold a modest amount of local securities in an account called the Fiji Development Loan. A number of other British colonial currency boards also began similar practices in the late 1950s owing to a relaxation by the British Treasury, which had the final say in colonial currency matters about local securities. Previously the Fijian commissioners had only held local assets in the form of temporary balances with the colonial Treasurer or Accountant-General when moving assets back and forth to London in response to demands for conversion. Another significant change occurred in late 1972, when the currency board began to accept deposits from commercial banks. The legal framework of the currency board was sufficiently elastic that apparently no new laws had to be passed to accommodate these changes.

Under the post-World War II Bretton Woods international monetary system, the pound sterling had pegged exchange rates with the U.S. dollar and gold. Through the link of the Fijian pound to the pound sterling, Fiji was also indirectly a part of the Bretton Woods system. For the 14-month span from November 28, 1967 to January 12, 1969, Fiji's currency was revalued against the pound sterling following the pound sterling's devaluation against gold and the U.S. dollar on November 18, 1967 (Fiji Annual Report, 1967: 25). The new exchange rate was Fijian £1.045 = £1 sterling.

Fiji introduced a decimalized currency on January 13, 1969 at Fiji $2 = Fijian £1 (Fiji Annual Report, 1970: 28). Fiji was one of several British colonies or former colonies to switch its unit of account from a local pound to a local decimalized dollar in the 1960s and early 1970s. Australia had done so in 1966 and New Zealand in 1967. An exchange rate of Fiji $1 = US$1.4832 was agreed between the United Kingdom and the IMF, because the U.S. dollar was the currency in terms of which IMF member countries denominated their exchange rates, but after becoming independent on October 10, 1970 and joining the IMF on its own on May 28, 1971, Fiji had not registered a par value with the IMF before the Bretton Woods system began to break apart. Gold convertibility for all countries ended in practice when the United States abandoned the gold standard on August 15, 1971. Foreign-exchange transactions were suspended in Fiji on June 23, 1972, when the United Kingdom floated the pound sterling, and resumed on June 26, 1972 (IMF, 1973: 168). On October 25, 1972, Fiji revalued against the pound sterling to offset the decline of the pound sterling against the U.S. dollar at the time, and the exchange rate was Fijian $1.98 = £1 sterling until June 30, 1973 (IMF, 1973: 169). The old exchange rate had been Fijian $2.22 = £1 sterling.

Was the Fijian board of commissioners of currency orthodox?

To determine whether the Board of Commissioners of Currency acted as an orthodox currency board, we must first determine what an orthodox currency board is. There are three major characteristics that make a currency board orthodox. First, there must be a fixed exchange rate with an anchor currency. Second, there must be full convertibility into and out of the anchor currency. Third, and finally, net foreign reserves should be 100 percent or slightly more of the monetary base, at least at the margin. The three characteristics taken together imply that the currency board does not partake in discretionary monetary policy (Hanke, 2008: 56).

We have already seen that the Fijian pound switched anchor currencies in the 1930s and had periods when it required payment for notes in gold rather than only in pounds sterling. During those times the currency board was not fully orthodox.

To see whether Fiji's Board of Commissioners of Currency was an orthodox currency board at other times, we performsix tests. The first test is that net foreign reserves should be between 100-110 percent of the monetary base. The second test is that domestic assets should be 0 percent (or close to 0 percent) of total assets. The third test is that reserve pass-through (change in monetary base divided by change in net foreign assets) should typically be between 80-120 percent, andthe closer to 100 percentthis number is the more orthodox the currency board is. The remaining tests attempt to adjust for possible noise in the third test. The fourth test calculates absolute changes in monetary base and net foreign assets. The fifth test examines the change in monetary base and net foreign assets as a percentage of the previous year's monetary base. The sixth and last test looks into the level of monetary base and net foreign assets (Hanke, 2008: 56, Schuler, 2005: 234).

Foreign assets as a percentage of monetary base

Our first test to determine orthodoxy was to see if net foreign assets were between 100 and 110 percent of the monetary base in Fiji, the range characteristic of an orthodox

currency board. Net foreign assets are gross foreign assets minus foreign liabilities. A corollary is that an orthodox currency board will also hold few or no domestic assets, even on a gross basis. A small amount of local financial assets may be held for making local payments such as staff salaries, and the currency board may own its building, but that is all. The more domestic assets are held as backing for the monetary base, the greater the chance that the assets will lose value if the domestic economy falters, because of the low liquidity of markets for domestic assets in a small economy such as Fiji. Also, foreign assets are not as highly correlated as domestic assets with downturns in the domestic economy, providing further insurance against the loss of confidence that could create a currency run when the domestic economy falters.

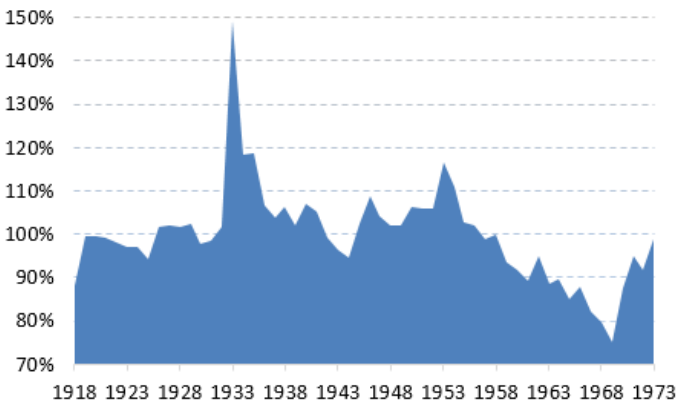


Figure 1. *Foreign assets as a percentage of monetary base*

Figure 1 shows the foreign assets as a percentage of monetary base in Fiji during the currency board period, using data from 1918 to 1973. (Earlier data was incomplete.) Our ideal percentage to show perfect orthodoxy would be 100 percent, or close to it, however anything over 100 percent should exemplify orthodoxy of some sort. The average percentage of foreign assets divided by monetary base over the 55-year period of the Fijian currency board was 99.69 percent, nearly perfect orthodoxy. The ratio substantially rose above 110 percent only at two points. In the early 1930s, the devaluation of the pound

sterling against gold raised the value of the currency board's gold reserves in terms of sterling-linked currencies, and then the devaluation of the Fijian pound raised the value of the board's foreign reserves in Fijian pounds. In 1953 the ratio spiked but it is unclear why. From 1958 onward the board held significant amounts of domestic assets because of changes to policy discussed above. Only in 1968 and 1969 did the ratio of foreign assets to the monetary base fall below 80 percent. Overall, then, the currency board was orthodox before 1958 and only moderately unorthodox afterwards.

Figure 2 below shows the domestic assets as a percentage of the monetary base in Fiji during the Board of Commissioners of Currency period, again using data from 1918 to 1973. An orthodox currency board backs the monetary base entirely by foreign assets and holds nearly zero domestic assets. Since Fiji's foreign assets were roughly 100 percent of the monetary base for most of the currency board period, we would assume domestic assets as a percentage of monetary base would be low. Figure 2 shows just this for most of the board's life.

The average percentage of domestic assets divided by monetary base over the 55-year period of the Fijian currency board was just 7.5 percent. This again indicates orthodoxy. There is a blip in the 1960s. In the 1950s and 1960s the British government loosened the rules for many colonial currency boards and allowed them to hold some domestic assets. In Fiji's case we see that after peaking above 33 percent of monetary base in 1967, and consistently being above 20 percent from 1963 to 1971 apart from one year, domestic assets dove back to low single-digit levels after this. Note that foreign assets plus domestic assets exceeded 100 percent of the monetary base rather than adding up to 100 percent, so that, for example, when domestic assets were equal to 33 percent of the monetary base in 1967, net foreign reserves were 82.0 percent of the monetary base rather than 67 percent.

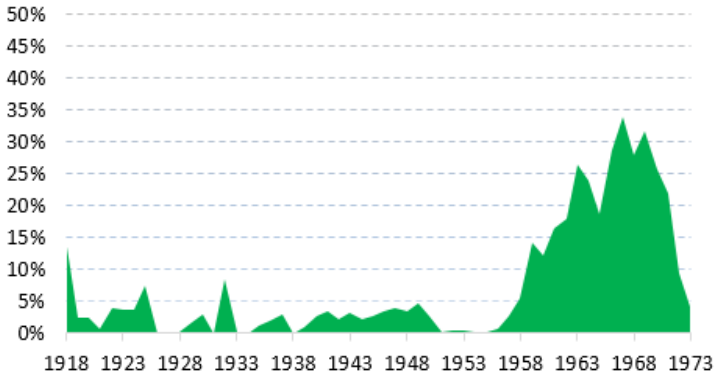


Figure 2. *Domestic assets as a percentage of monetary base*

Domestic assets and total assets

The second test (Figure 3, on the next page) examines what percentage domestic assets are of total assets. In an orthodox currency board, domestic assets will be 0 percent of total assets, or close. If a currency board holds domestic assets exceeding 10 percent of total assets, it is a sign of unorthodoxy. The rationale for avoiding domestic assets is that they are less liquid than top-quality foreign assets, and may only be saleable at a steep discount during a financial crisis. Figure 3 shows the domestic assets as a percentage of total assets. Until the 1960s, rarely are the domestic assets greater than 10 percent. The average percentage of domestic assets divided by total assets over the 55-year period of the Fijian currency board was 6.85 percent. The greatest value was in 1969 at 29.8 percent, but13 of the 14 times the percentage was greater than 10 percent were during the 1950s and 1960s, again because of the policy change mentioned above. As with the first test, this test suggests that the currency board was orthodox for most of its life and unorthodox for a period near the end before veering back to orthodoxy shortly before the end of its existence.

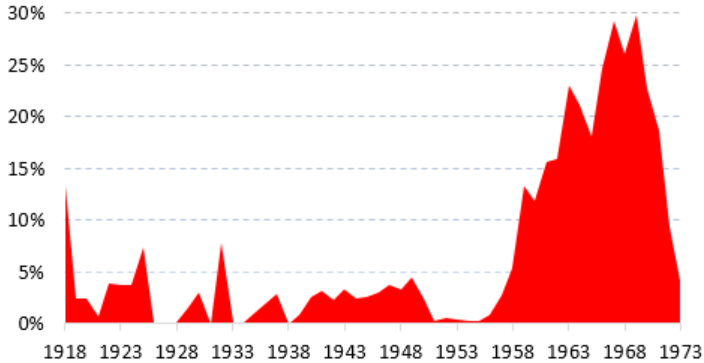


Figure 3. *Domestic assets as a percentage of total assets*

Reserve pass-through

Another test of currency board orthodoxy concerns reserve pass-through. Reserve pass-through is the change in monetary base divided by the change in net foreign assets, and is calculated year-over-year. With a perfectly orthodox currency board, reserve pass-through would be 100 percent. Given that there is often difficulty in measuring reserve pass-through precisely, because of such factors as changes in the market value of assets and the timing or expenses, Prof. Steve Hanke and Dr. Kurt Schuler have suggested that in practice a range from 80-120 percentshould be considered orthodox. The reason reserve pass-through should be near 100 percentis because changes in the monetary base should directly reflect the public's purchases and the sale of foreign currency for domestic currency.

Figure 4 shows the reserve pass-through for Fiji during its currency board period. The ratio was highly volatile from start to finish. With two exceptions, the data stayed between -300 percent and +300 percent, but was volatile between these marks. Figure 4 suggests that the Fijian Board of Commissioners of Currency was not orthodox by this measure, even for the period before the board began to hold substantial foreign assets. The average annual reserve pass-through for the whole era of available data was 70.0 percent.

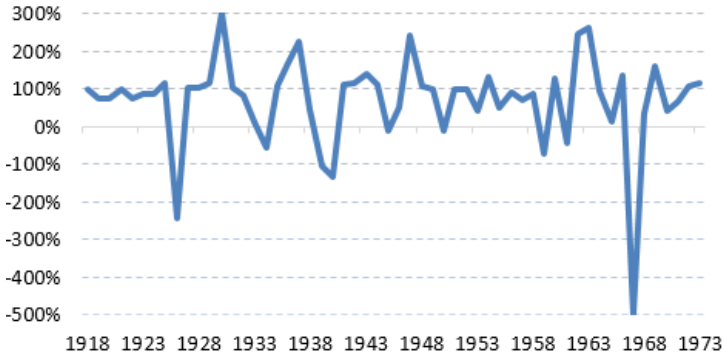


Figure 4. *Reserve pass-through year-over-year percentage*

Reserve pass-through measures changes. It can also be illuminating to look at the underlying figures from which the changes are measured. Figure 5 showsnet foreign assets and monetary base during the currency board period in Fiji. Although there were not many holes, years where data have not yet been found have been filled in with the previous year's numbersfor the sake of continuity. The foreign assets and monetary base grew together at similar rates over the long run, which means the reserve pass-through figures are not as damaging to the case for orthodoxy as they might appear at first sight. Note that the amounts are expressed in Fijian dollars; Fijian pounds have been converted into Fijian dollars at £1 = $2 for continuity and ease of reading.

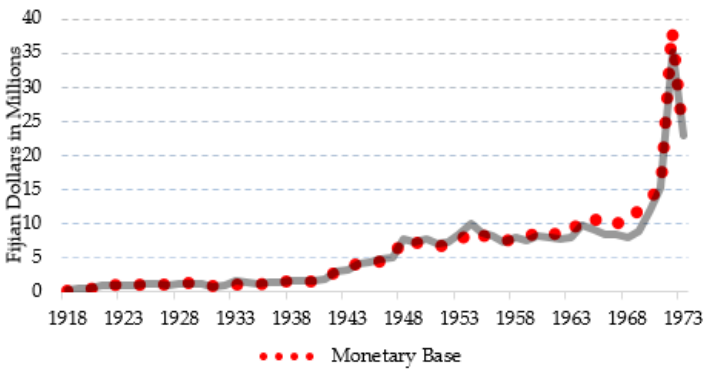


Figure 5. *Net foreign assets and monetary base*

Absolute change in net foreign assets and monetary base

Test 4 compares absolute changes in net foreign assets and monetary base on a year-over-year basis. A perfectly orthodox currency board would have changes in monetary base and net foreign assets follow a 1:1 ratio, or 100 percent. Figure 6 shows the absolute change in foreign assets and monetary base year-over-year. As with figure 4, the data in figure 6is volatile. There was no easily detectable pattern between change in foreign assets and monetary base. Therefore, strictly based on test 4, it would be assumed the Board of Commissioners of Currency acted in an unorthodox manner.

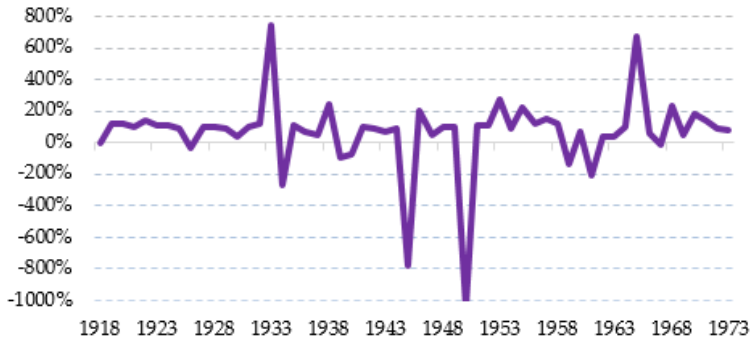


Figure 6. *Total change of net foreign assets to total change of monetary base, year-over-year*

Net worth residual as a percentage of total assets

A final test to determine orthodoxy examines the net worth residual as a percentage of total assets. Net worth is total assets minus total liabilities (excluding, of course, the net worth component that occurs on the liability side of a balance sheet). A currency board is considered orthodox if this percentage is between 0-15 percent. In principle, a currency board needs no net worth residual if its assets are perfectly safe, but in practice many currency boards have had net worth of around 10 percent of assets as a safeguard against the depreciation of the market value of their assets, particularly longer-term securities. British colonial currency boards rarely or never had paid-in capital, so their net worth consisted of earnings not passed along to the government. Figure 7 shows that during Fiji's currency board period, net worth was in the 0-15 percent range with just a few exceptions. Net worth was below zero in 1931, when it fell to -1.5 percent on the devaluation of the pound sterling against gold. The only other years it was negative were 1943 (-0.4 percent) and 1944 (-3.4 percent), when foreign assets did not grow as fast as the board's liabilities; the reasons are not clear in the absence of a narrative account from the period. In 1933 the net worth of the currency board temporarily soared to 32.9 percent of total assets as a result of the devaluation of the Fijian pound, which raised the value in pounds of foreign assets. By the following year net worth was just about 15 percent. The overall impression from the net worth test is that in this respect, the currency board was orthodox.

Figure 7. *Net worth as a percentage of total assets*

Conclusion

Our statistical analysis suggests that the Fijian Board of Commissioners of Currency acted in more of an orthodox manner than an unorthodox manner. Test 1 indicates that with the exception of a few years in the 1960s, foreign assets as a percentage of monetary base were in the neighborhood of 100 percent. Test 2 shows domestic assets to be less than 7 percent of total assets on average throughout the whole period, although significantly higher in the 1960s. Test 3 shows a volatile and unorthodox reserve pass-through ratio. However, reserve pass-through can be a ratio of small changes in large underlying magnitudes, namely the foreign assets and the monetary base. The underlying magnitudes grew in parallel, which is a sign of orthodoxy. Test 4 is the only test performed that indicates true unorthodoxy by the Fijian currency board. The change in net foreign assets to change in monetary base was extremely volatile, and showed no tendency to home in on the 1:1 ratio of an orthodox currency board. Finally, test 5 indicated that the net worth residual was within the orthodox range of 0-15 percent for the whole period.

There were two periods of unorthodoxy. As has been discussed, in the 1930s the currency board switched anchor currencies and required payment for Fijian currency in gold even though it apparently did not pay gold when cashing Fijian currency. In the 1960s the board held significant domestic

assets, but reversed this behavior before the end of its existence.

On April 5, 1973, the Governor-General of Fiji approvedthe Central Monetary Authority Act to establish the Central Monetary Authority in place of the currency board. This law provided for a Board of Members of six people including a chairman, a general manager, and several secretaries to be responsible for the Authority's policies and affairs. The government of Fiji replaced the currency board because it felt that the actions of the monetary authority should be self-starting and self-reversible. The board was simply a currency issuing and redeeming organization. The main function of the new Central Monetary Authority was to expand upon the powers of the currency board and ensure the convertibility of the Fiji dollar to the then current laws relating to the control of foreign exchange. In doing so, the Central Monetary Authority had much greater control over the creation of currency, coin, and bank deposits (Central Monetary Authority of Fiji, 1974: 10-11). The Central Monetary Authority, which had more discretionary monetary powers than the currency board but less than a typical central bank, in turn gave way to the Reserve Bank of Fiji, a full-fledged central bank, in 1975.

A rough gauge of the long-term record of the Reserve Bank of Fiji is the exchange rate between the Fijian dollar and the pound sterling, which was Fijian $1.98 = £1 sterling at the end of the currency board period. Today the exchange rate is approximately Fijian $2.86 = £1 sterling, a modest rate of depreciation over a 45-year span. Many countries that have replaced their currency boards with national central banks have performed orders of magnitude worse.

Note: Accompanying Data

An accompanying spreadsheet workbook gives the data underlying this paper. The main source of the data was the Fiji Royal Gazette, with some supplementation by the colonial annual report and the Blue Book (a standardized annual statistical summary issued by British colonies up to around the time of World War II). The currency board issued abbreviated financial statements as of the tenth day of the month from 1914 or 1915 to 1934. It also issued fuller annual statements as of the end of December. From 1935 onward the currency board only released data semiannually. The workbook also includes some other data that may be useful to researchers, namely the annual balance sheet of the government and data on bank assets. Some data are missing because of difficulty locating issues of the Fiji Royal Gazette. The graphs and most of analysis in the paper are based on annual data, but the available higher-frequency data seem to support the conclusions arising from the annual data.

Appendix

Relevant Fijian Legislation during the Currency Board Period

A chronological summary of relevant legislation passed from 1913-1973 affecting currency in Fiji and the Fijian currency board.

•Fiji, Government Currency Notes Ordinance, No. 30, 18 November 1913: Established the Board of Commissioners of Currency.

•Fiji, Government Currency Notes Amendment Ordinance, No. 2, 14 February 1917: Allowed the currency board to invest in a wartime loan to the government of Fiji (apparently securities).

•Fiji, Government Currency Notes Amendment Ordinance, No. 19, 20 December 1918: Allowed the British Secretary of State for the Colonies to approve reducing the coin reserve to as low as one-half of the notes in circulation, as opposed to one-half before (the rest of the reserve being held as securities).

•Fiji, Government Currency Notes Amendment Ordinance, No. 23, 19 November 1920: Allowed the Commissioners of Currency to pay notes in silver coins permitted by the British Secretary of State for the Colonies.

•Fiji, Ordinance No. 9 of 1921: Allowed the British Secretary of State for the Colonies to approve reducing the coin reserve to as low as one-fifth of the notes in circulation, as opposed to one-quarter before (the rest of the reserve being held as securities).

•Fiji, Government Currency Notes Amendment Ordinance, No. 1, 1 June 1922: Allowed the government to suspend the convertibility of currency board notes into gold from time to time or to pay the notes in silver (such as British silver coins).

•Fiji, Currency Notes (Amendment) Ordinance, No. 42, 13 December 1932: The currency board was allowed to issue notes against drafts on New Zealand currency for a temporary period of six months.

•Fiji, Currency Notes Ordinance, No. 6, assented 25 July 1933, in force 1 November 1933: Put the currency on sterling exchange basis at Fijian £111 = UK£100 and ceased reference in the law to gold or silver coins. Increased the depreciation reserve from 10 percent to 20 percent, high for a currency board.

•Fiji, Coinage Ordinance, No. 1, 29 March 1934: Made the coinage the responsibility of the Commissioners of Currency and provided for establishing a Coinage Security Fund.

•Fiji, Central Monetary Authority Act, No. 1 of 1973: Replaced the currency board with a quasi central bank.

References

Boger, T. (2018). British imperialism and portfolio choice in the currency boards of Palestine, East Africa, and West Africa. *Journal of Social and Administrative Sciences*, 5(4), 296-308.

Central Monetary Authority of Fiji. (1974). Report and Financial Statements. Parliament of Fiji, *Parliamentary Paper,* No.8.

Digital Archive on Currency Boards. (2019). Institute for Applied Economics, Global Health, and the Study of Business Enterprise, Johns Hopkins University. [Retrieved from].

Fiji Annual Report. (1913-1970). Great Britain (United Kingdom). Colonial Office, Report for... (1913-1930); Colonial Office, Annual Report on the Social and Economic Progress of the People of Fiji (1931-1938); not published 1939-1946 because of World War II; Colonial Office, Annual Report on Fiji for the Year... (1947-1950), Colonial Office, Report on Fiji for the Year... (1951-1958); Colonial Office, Fiji: Report for the Year... (1959-1965); Commonwealth Office, Annual Report on Fiji for the Year... (1966-1967); Foreign and Commonwealth Office, Annual Report on Fiji for the Year... (1968-1970). London: His / Her Majesty's Stationery Office.

Fiji Royal Gazette. (1875-1987) Suva. Contains the annual and higher-frequency financial statements of the Commissioners of Currency.

Hanke, S.H. (2002). Currency boards. Annals, American Academy of Political and Social Science, no. 579. [Retrieved from].

Hanke, S.H. (2008). Why Argentina did not have a currency board. *Central Banking*, 18(3), 55–58.

Hanke, S.H., & Schuler, K. (2015). *Currency Boards for Developing Countries: A Handbook*. Original edition San Francisco: ICS Press, 1994.

Johnston, D.M., & Reisman, W.M. (2008). *The Historical Foundations of World Order: the Tower and the Arena*. Boston: Martinus Nijhoff Publishers.

Knapman, B. (1987). *Fiji's Economic History, 1874-1939: Studies of Capitalist Colonial Development*. Canberra: Australian National University Press.

Krus, N., & Schuler, K. (2014). Currency board financial statements. Institute for Applied Economics, Global Health, and the Study of Business Enterprise, Johns Hopkins University, Studies in Applied Economics, No.22. [Retrieved from].

Narsey, W. (1986). Fiji's colonial monetary system, export of colonial capital and colonial underdevelopment. *Journal of Pacific Studies*, 12, 87–161.

Narsey, W. (2016). *British Imperialism and the Making of Colonial Currency Systems*. Basingstoke, UK: Palgrave Macmillan.

Reserve Bank of Fiji. (1995a). Reserve Bank of Fiji (historical summary). [Retrieved from].

Reserve Bank of Fiji. (1995b). History of Our Currency. Reserve Bank of Fiji. [Retrieved from].

Schuler, K. (2005). Ignorance and influence: U.S. economists on Argentina's depression of 1998–2002. *Econ Journal Watch*, 2(2), 234–278.

Skully, M.T. (1987). *Financial Institutions and Markets in the Southwest Pacific: a Study of Australia, Fiji, New Zealand, and Papua New Guinea*. New York: St. Martin's Press.

Wilson, M. (2019). Reserve Bank of Fiji. Rbf.gov, Reserve Bank of Fiji. [Retrieved from].

8 History and analysis of the monetary system of Thailand, 1902-1942

Zixiang ***Ma*** & Nicole ***Saade***

Introduction

Thailand's monetary system from 1902 to 1942 has been little discussed in English. Economic publications widely read at the time, such as Edwin W. Kemmerer's *Modern Currency Reforms* (1916), discussed monetary systems similar to Thailand's but overlooked the Thai monetary system itself.

This chapter aims to examine Thailand's monetary system after the issuance of notes started in 1902 until 1942, and also analyze whether, at any time during this period, the Thai financial system operated as a currency board. The period from 1902 to 1942, during which the Thai Ministry of Finance issued notes, has not been studied as a whole, at least not in English, and the monetary data of the period have previously not been available in machine-readable form. This paper is based in part on the work of Ian Brown (1972, 1975, 1978, 1979), whose studies are the only detailed account of the Thai system in English (and perhaps in any language), but which only cover its early years. The paper draws historical data from the *Statistical Yearbooks of Thailand* to describe characteristics of the note issue to test

whether, during its lifetime, it ever worked like a currency board. The chronology on the next page contains a summary of key statistics, legislation, and relevant events.

A remark on the political system is in order here. Thailand, or the Kingdom of Siam, was an absolute monarchy until June 24, 1932. A group of Siamese officials, motivated mainly by the difference between the backwardness in Siam and the advances that could be seen in Western Europe, staged a revolution that overthrew the old system. The revolution allowed the king to keep his throne provided that he acted according to the will of a constitutional government (Stowe, 1991: 19). Siam then became a constitutional monarchy, at least on paper. A military coup the next year began a pattern that persists to the present of alternating periods of military and civilian rule.

For a brief time, the monetary system this paper discusses extended outside the present-day borders of Thailand. After France was conquered by German military forces in 1940 during World War II, Thailand attacked French Indochina and regained territory in Cambodia and Laos that it had previously ceded to France. Japan, which had invaded Vietnam, the other colony of French Indochina, mediated a settlement between Thailand and France. The Kingdom of Siam (Thailand) was occupied by the Japanese in December 1941, once World War II erupted in Southeast Asia; however, in comparison with other countries, Siam's occupation was less severe, since the Thai government retained, to a certain level, capacity for independent action. After the war, Thailand returned to Laos and Cambodia the territory it had gained in 1940.

Chronolgy

Time	Legislation	Relevant events
1850-1902		Silver standard - International Value of baht coins depended on the silver they contained - In 1902, the government decides to untie the currency to silver
1902-1928	- Paper Currency Act (24 June 1902): notes backed 75% by coin, 25% by investment in securities - Paper Currency Amendment Act, 9 October 1906: coin reserve = securities reserve = 50% - Gold Standard Act, 11 November 1908: 1 Siamese tical (Thai baht) = 0.558 grams gold; silver tical of 13.5 grams silver = gold tical	- In 1902, Treasury buys and sells sterling at fixed rates (Statistical Yearbook of Thailand 1939-1944) - Notes issue begins (19 September 1902) - Paper Currency Department opened (23 September 1902) - 1907: a special Paper Currency Reserve is set; it is backed by the Gold Standard Reserve
1928-1941	- Currency Act (15 April 1928): the Paper Currency Act, the Gold Standard Act, and the Coinage Act are repealed. 1 baht = 0.66567 grams of fine gold, or 11 baht = £1 sterling. Exchange controls are removed - Emergency Currency Act (December 1941): enacted after the Japanese Invasion. Allows the finance ministry to issue pertinent regulations and amendments related to the currency. 1 baht = 0.32639 grams of gold (nominally)	- Gold exchange period - Strong trade surplus - Currency in circulation increased - Strong gold and foreign reserve - 21 September 1931: England leaves the gold standard - 1932 sterling-baht link re-established - 1939: U.S. dollars and dollar securities are added to the components of the Currency Reserve
1942	- Exchange Control Act, 1942 - Bank of Thailand Act, 1942	- January: convertibility of the baht into sterling is suspended, its gold value is pegged at 0.32639 grams of fine gold (nominally), and the currency authority is authorized to issue notes against gold - June: Japanese yen becomes legal component of the currency reserve - 11 December: Central bank, the Bank of Thailand, opens

The silver standart (1850-1902)

From 1850 to 1902, Thailand maintained a silver standard, in which the international value of the Thai baht (called in the West at the time the Siamese tical) depended on the silver it contained. The baht weighed approximately 15.292 grams, of which approximately 90.625 percent was silver (U.S. Bureau of the Mint Annual Report 1900: 512-513). As trade expanded, Thailand experienced a net influx of silver, given that exports exceeded imports. The silver was then sold to the mint and baht coins were paid out in exchange, adding to domestic circulation. Additionally, King Mongkut, advised by the British consul, allowed foreign coins to circulate for trading purposes in Thailand according to the "Proclamation Concerning the Use of Foreign Coins" in 1857. The government issued notes in the 1850s, 1860s, and 1874, but they did not achieve wide circulation, and by the end of the century they had long disappeared from circulation.

The monetary system consisted of the silver standard and baht coins. The government had no sophisticated capacity to regulate the money supply. The Treasury was simply a middleman for silver exchange: when trade brought in silver, banks sold it to the Treasury for baht coins, while the opposite occurred when traders needed silver to pay for imports.

After 1870, silver began to depreciate against gold in world markets. Depreciation added to the cost of imports while stimulating exports. The government's concern about the cost of essential imports servicing foreign loans denominated in sterling, a gold-standard currency, contributed to sentiment to abandon the silver standard. Finally, in 1902, the government decided to untie the currency from silver.

Thailand got its first modern bank when the Hong Kong and Shanghai Bank (today HSBC) opened in Bangkok in 1888 and introduced the first notes (paper money) the following year. The notes were for 1 to 100 baht. Later, the London-based Chartered Bank of India, Australia and China (today Standard Chartered) and the Paris-based Banque de l'Indochine opened and also issued notes. The notes circulated mainly in Bangkok (King, 1988: 129-132). The first locally owned bank, the Siam

Commercial Bank, did not open until in 1906, and even then, its management was initially German (Sithi-Amnuai, 1964: 33, 49).

It is worth mentioning that in the late 19th century, Thailand underwent a series of reforms to promote efficient administration. This was regarded as essential given that Thailand wanted to maintain its political independence, especially since other countries in Southeast Asia had fallen under European rule. These reforms included the employment of European technical experts of different nationalities. Some worked as advisors to government departments. The advisors to the Ministry of Finance were British (Brown, 1978: 194), and their power was considerable (Ingram, 1971: 152). Alfred Mitchell-Iness was assigned as Thailand's first British financial advisor in 1896 (Brown, 1978: 194) and was succeeded by Charles James Rivett-Carnac in 1899 and afterward by Walter Williamson in 1904. Financial advisors would remain in Thailand until 1950 (Ingram, 1971: 152).

Establishment of the Gold Standard; Government Paper Money (1902-1928)

In June 1902, the cabinet passed the Paper Currency Act, stripping the banks of the right to issue notes and making it a government monopoly. (See Appendix A for a list of the legislation this paper mentions.) The act required that around 75 percent of the value of notes in circulation be backed by coin and the rest be backed by investments in securities. Thailand had no local gold coinage, so the coin reserve consisted of silver baht. The act left open whether the securities to be held were foreign or domestic. The act also established the Paper Currency Department as a division of the Ministry of Finance. The department administered the exchange of notes and coins and maintained the Paper Currency Reserve. By August 1902, the paper currency scheme was inaugurated, as a sufficient amount of notes had been received from the printers (Brown, 1972: 30).

The Paper Currency Department officially opened on September 23, 1902. The notes consisted of four

denominations: 5, 10, 20, and 100 baht; later, a 1,000-baht was issued (Brown, 1972: 30). The government mint, also under the supervision of the Treasury, continued to issue coins. Coins were not subject to any reserve requirement. Initially, Thailand remained on the silver standard, with the baht equal to approximately 13.85 grams of pure silver, or three-fifths of a silver dollar of the Straits Settlements, a British colony comprising Singapore, Penang, Malacca, and Dinding. On November 27, 1902, prompted by an increase in the price of silver relative to gold, the Thai Treasury established an official exchange rate of 17 baht per pound sterling. This rate was not realistic in light of the market exchange rate at the time, so on December 17 the Treasury established a more realistic rate of 19.75 baht per pound sterling. Silver continued to appreciate against gold, so the Treasury periodically appreciated the baht's exchange rate with sterling accordingly to prevent baht coins from becoming worth more as metal than as coins, which would have led to them being withdrawn from circulation and melted down, creating deflation.

The pound sterling became the new anchor since it was the leading currency of the time, given the large scale of the British economy and the fact that London was the world's biggest financial market, especially for governments that wanted to borrow more than they could from domestic investors. Borrowers borrowed funds in sterling rather than in their own currencies because lenders trusted it most, given Britain's record of maintaining the gold standard uninterrupted for decades.

Siam, starting during this period, pursued many financial orthodoxies that mirrored those of neighboring countries at the time. For example, Thailand pursued a policy of maintaining high reserve levels, and so did the Straits Settlements, which had established a currency board in 1899, initially fixed to silver but switching to sterling in 1906. Malaya, Thailand's neighbor to the south, did not issue its own currency, so the circulating currency was the Straits Settlement currency. Malaya benefited from the Straits dollar's exchange stability (Brown, 1978: 212). The Straits dollar was also widely used in southern Thailand in the early years of the 20th century.

Thailand's mirroring of standard monetary orthodoxies at the time may also have a relationship with the aforementioned British advisors working for the Ministry of Finance. British India operated under a quasi currency board system for many from 1870 until 1916 (Weintraub & Schuler, 2013: 14). Thailand's British advisors working in the Ministry of Finance were aware of these monetary systems, which may explain why, according to Ian Brown, Thailand considered it a priority to maintain the exchange value of the baht in terms of sterling and gold.

Treasury Selling Rate for the Baht (December 1902-February 1904)

In 1906, the Paper Currency Amendment Act was passed to allow up to 50 percent of the Paper Currency Reserve to be invested to earn interest. After finance minister Praya Suriyanuvat (Kert Boonak) laid his proposal to issue gold coins before the Council of Ministers on June 25, 1906, the exchange rate was revalued to 15 baht per pound 1 with the King's approval. In December 1907, the Treasury again revalued the selling rate, to 13 baht per pound. The table details exchange rate changes during this period can be found in Appendix B.

Change in Treasury Selling Rate for Baht against Sterling (1908-1928)

On 11 November 1908, the Gold Standard Act was passed, dictated a fixed exchange rate of 0.558 grams of pure gold per baht and promised the government's capability of maintaining parity. In fact, a de facto gold-exchange standard had been existing since November 1902: the government maintained a reserve of foreign currencies that could be converted into gold, and the Ministry of Finance sold and bought against gold-based currencies at set rates. In May 1909, the Paper Currency Department ceased to be a separate division within the Ministry of Finance, as it was transferred to the Comptroller-General's office. Even though matters related to the Department would be dealt with by the Comptroller-General, the Minister of Finance would still have ultimate responsibility for the Department's operations (Brown, 1972: 40).

Until World War I broke out in 1914, the Treasury managed to maintain the exchange rate around 13 baht per pound with relative ease. At the start of the war, Britain suspended the gold standard. Silver eventually rose in price against gold and sterling, again threatening a drain of silver baht coins from circulation. As a counter-measure, the government forbade the export of silver on 21 June 1917 (Siam, proclamation of 21 June 1917, cited in U.S. Bureau of the Mint Annual Report, 1928: 187). In 1919, at the end of World War I, Thailand experienced a financial and economic crisis, boosted by two main factors: the unprecedented demand for rice in Bangkok, resulting from a crop failure, and the rising price of silver (Ingram, 1971: 156).

The rising price of silver motivated melting of baht for export. The government had to choose between protecting the foreign reserve and silver currency, and it chose the latter. An option that it apparently felt was not politically feasible would have been to reduce the silver content of baht coins or even to convert them into token coins with no silver content.

The United Kingdom returned to the gold standard in 1925 at the prewar exchange rate.

The Currency Act (1928-1941)

On April 15, 1928, the government passed the Currency Act. This act repealed the Paper Currency Act (1902), the Gold Standard Act (1908), and the Coinage Act (1903). It also repealed exchange controls. The exchange rate remained at 11 baht per pound sterling, and the baht was equivalent to 0.66567 grams of gold. Only a year and a half later, the U.S. stock market crash of October 1929 began a worldwide depression. Gold-standard currencies suffered deflationary pressure and came under attack by currency speculators. In September 1931, Britain abandoned the gold standard, and the pound sterling depreciated against gold. Thailand responded by linking to gold as the unequivocal anchor (Shenoy, 1950: 289). However, in May 1932, the association with sterling was re-established, and the possibility of converting baht into gold or gold exchange was no longer comprehended within currency laws (Shenoy, 1950: 289). Sterling's depreciation against gold

enabled Britain to reverse much of the deflation and depression that it had suffered. When Britain went off the gold standard, it took the whole British Empire with it. Because of Thailand's trade and investment links with Britain and the British colonies of India, Malaya, and Singapore, it made sense for Thailand to return to sterling as its anchor currency. The Currency Reserve continued to be invested in gold or gold currencies until May of 1933, when the holdings of gold were converted into sterling (Bureau of General Statistics, *S.Y.T., 1939-1944*: 426).

During this period, the issue of currency and volume of money in circulation increased due to increased demand for money that resulted from the expansion of production and trade in Siam. An export surplus also enabled the accumulation of reserves (Shenoy, 1950: 289).

In August 1939, the United States dollar was added as a component of the Currency Reserve (Bureau of General Statistics, *Statistical Yearbook of Thailand, 1939-1944*: 426). We suspect the reason was that the Thai government knew that war in Europe was imminent or was at least a strong possibility. Holding dollar assets gave the Currency Reserve a way to reduce the political risks from holding sterling as the only foreign currency. World War II began in Europe the next month.

There had already been a war in progress between Japan and China since 1937. In October 1940, Japanese military forces had invaded and quickly conquered neighboring French Indochina. World War II in the Pacific began on December 7-8, 1941 with Japanese attacks against Hawaii, the Philippines, Hong Kong, Malaya, Singapore — and Thailand. Later that month, the government passed the Emergency Currency Act. It allowed the Ministry of Finance to issue regulations and provide appropriate amendments related to the currency (Bureau of General Statistics, *Statistical Yearbook of Thailand, 1939-1944*: 426). The main principles of the Currency Act of 1928 still applied, but they could now be superseded by any amendments made under the Emergency Act (Bureau of General Statistics, *Statistical Yearbook of Thailand, 1939-1944*: 426). After the Japanese conquest, Thailand was officially an ally of Japan, which enabled it to retain its own government under close

watch by the Japanese, rather than being directly government by Japanese military officials as Malaya was.

The Yen Standard and the Bank of Thailand (1942)

In January 1942, the convertibility of the baht into sterling was suspended due to the spread of World War II to Southeast Asia. The gold value of the baht was then fixed at 0.32639 grams of fine gold (Shenoy, 1950: 290), and government securities became eligible to be held in currency reserve (Ingram 1971: 163). This set of decisions was made because the sterling portion of the currency reserve, which was held in London, was lost with the outbreak of the war in 1941, leaving the currency notes lacking adequate cover (Ingram, 1971: 163). In April, the gold value of the baht was further reduced to 0.25974 grams of gold (Shenoy, 1950: 290). In practice, the gold value of the baht was only nominal; people could not actually exchange baht notes and coins for gold. In June of the same year, the baht switched to a yen standard of 1 baht = 1 yen. This rate, desired by the Japanese occupiers, represented a 36 percent devaluation of the baht relative to the prewar exchange rate of 1 baht to 1.5570 yen. Moreover, convertibility into yen was conditional on being needed for bona fide business purposes as determined by the exchange control authorities. The link between the baht and the yen would last until May 1, 1946, following the end of the State of War with the Allied nations on January 1 of the same year (Shenoy, 1950: 290).

The idea of establishing a central bank in Thailand was born in 1932 after the revolution of that year established a constitutional rule in Siam. However, the idea was shelved and revived on numerous occasions until December 1938, when Lieutenant General Luang Pibulsonggram and Pridi Banomyong were appointed as prime minister and minister of finance, respectively. Banomyong revived, once again, the idea of establishing a central bank in Siam. With the help of foreign advisers, a central banking act was drafted according to the need and intentions of the government (Bank of Thailand). Following this, Thailand established a National Banking

Bureau to manage government debt and lay the groundwork for central banking. The Thai National Banking Bureau started operations on May 11, 1940. After the Japanese invasion of December 1941, the occupying Japanese authorities demanded the establishment of a central bank with Japanese advisors and department heads. The Thai Government rejected this idea; instead, it changed the Thai National Banking Bureau into a central bank (Bank of Thailand, 1992). Doing so enabled it to have greater independence than In the Japanese proposal.

On December 10, 1942, the Bank of Thailand Act officially established a central bank: the Bank of Thailand. The management of the note issue, previously a responsibility of the Ministry of Finance, was transferred to the central bank's Issue Department (Shenoy, 1950: 290). After its establishment, the Bank of Thailand became the country's central monetary authority (Bureau of General Statistics, *Statistical Yearbook of Thailand, 1939-1944*, page 426).

Overview of Thailand's Monetary System from 1902 until 1942

We believe it is of interest to analyze how Thailand's financial system changed during the 40 years on which this paper focuses.

One key aspect is the change in the predominance of the coins in circulation in Siam during the given time period. In March 1905, coins in circulation made up approximately 90 percent of the value of the currency in circulation. By December 1941, currency notes made up for approximately 90 percent of the currency in circulation. The increasing usage of notes relative to coins is one indication of financial development. Two graphs below show the relationship between notes and coins in circulation in Thailand by percentage and by value.

As seen on the chart, starting in 1923 until December 1941, there were many fluctuations in currency circulation. Total currency circulation experienced little overall growth until World War I, but the circulation of paper money increased rapidly after 1902 (Ingram, 1971: 154). As a result of the demand

for baht given the strong demand for Thailand's export products during the war, total currency circulation experienced a sharp increase (Ingram, 1971: 156). The Treasury was able to supply baht only by issuing paper money. Emergency measures were taken to address the increasing demand for baht, including releasing the last of silver coins in reserve and overprinting one-baht notes as 50-baht notes. Due to the postwar depression, the total currency circulation fell as there was a heavy purchase of sterling from the Treasury to cover unfavorable turn in the balance of payments (Ingram, 1971: 158). Around 1923 to 1924, as exports improved, sterling drain stopped, and £2 million were sold to the Treasury, total currency circulation began to recover (Ingram, 1971: 159). From 1932 to 1941, notes in private circulation rose from 77 million to 287 million baht and silver coins in circulation dropped from 68 million baht to 26 million, resulting in an overall increase in currency in circulation (Ingram, 1971: 162). As World War II began, currency in circulation was sharply inflated by an export surplus financed by issuing baht notes against yen credits, budget deficits financed by turning over noninterest-bearing Treasury bonds, and expenditure made by Japanese occupation forces (Ingram, 1971: 163).

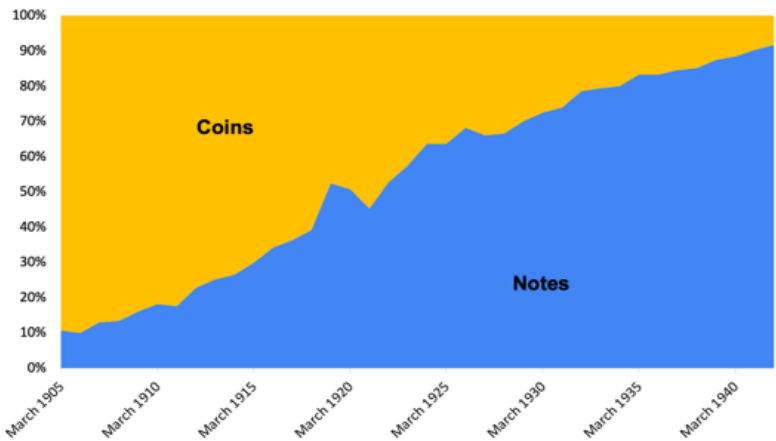


Figure 1. *Notes vs. coins in circulation in Tailand 1904-1941 (Percentage)*

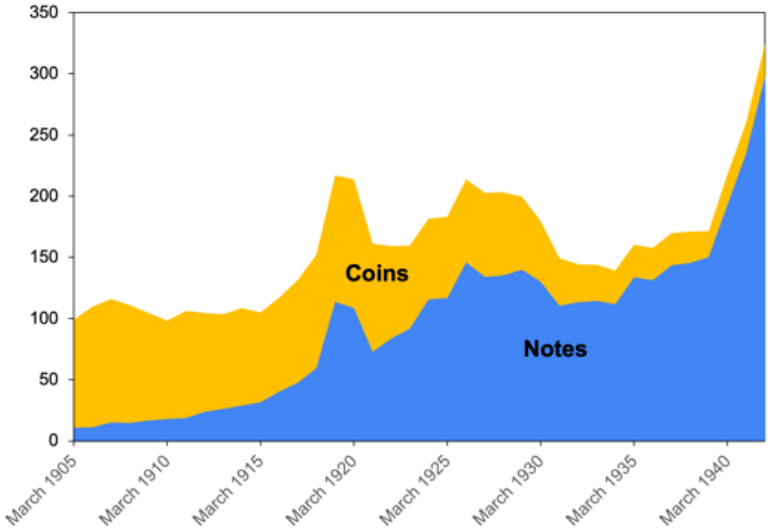


Figure 2. *Notes and coins in circulation, 1905-1941 (million ticals/bath)*

Another aspect of interest is the change in the baht-sterling exchange rate and also in the baht-U.S. dollar exchange rate during the period. Below is a chart that shows the fluctuations in both exchange rates.

Figure 3. *Offical mean exchange rate of bath against sterling and USD (1902/1 to 1941/6)*

Figure 4. *Offical mean exchange rate of bath against sterling (1906/11 to 1941/6)*

Finally, another aspect we find relevant is the change in the currency reserve components. Below are two charts showing the shifts in the relationship between the components, both by value and by percentage. The graphs show a predominance of foreign assets over all other components of the Currency Reserve. In 1903, baht coins consisted of 50% of the Currency Reserve; by 1940, it represented less than 5%. We can see that domestic assets were a minor component of the reserve, only reaching a maximum value of approximately 10% of the reserve's value in 1923. Finally, one can see that gold took an increasingly relevant role as a component of the reserve. By 1942, gold composed approximately 30% of the value of the Currency Reserve.

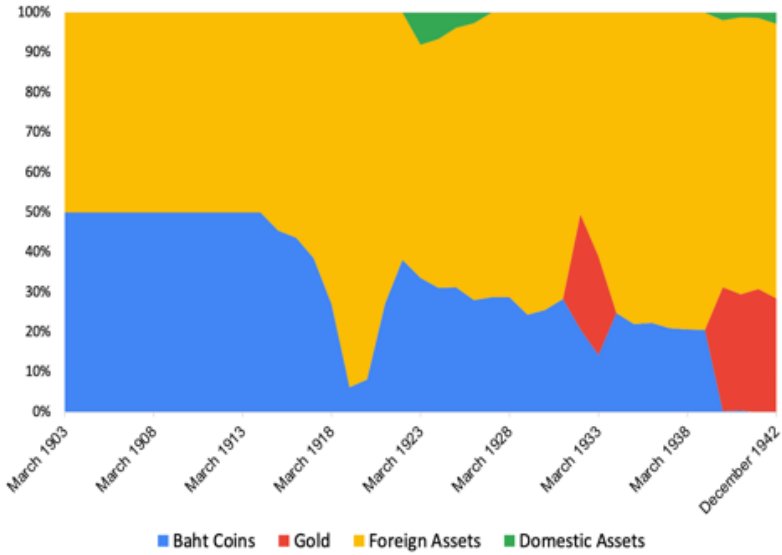


Figure 5. *Currency reserve components (percentage)*

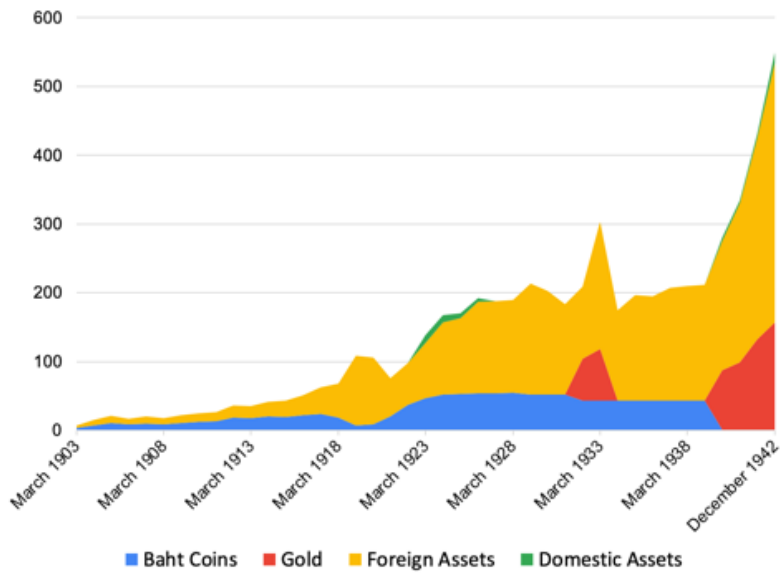


Figure 6. *Currency reserve components (million ticals/bath)*

Spreadsheet data

For carrying out the set of analyses comprehended in this working paper, we retrieved data from the *Statistical Yearbooks of Thailand* (Kingdom of Siam) from 1916 to 1944. The yearbooks were found through archival websites and at the Library of Congress in Washington, D.C. The Excel workbook accompanying this working paper will be of use for other researchers who wish to investigate Thailand's financial system in the 1902-1942 period in the future.

Only annual data is available for most of the early years of the period. Before March 1907, data related to the exchange rates were the only monthly data available. We also performed calculations to ensure that the components listed on the yearbooks equaled their sums. We also made minor corrections to the raw data as necessary.

Tests of currency board orthodoxy

The facts we have offered about Thailand's financial system in the 1902-1942 period raise the possibility that the system was close to a currency board for at least part of the period.

Three main characteristics define an orthodox currency board: a fixed exchange rate, no exchange controls with the anchor currency, and 100% foreign reserves against the monetary base (Hanke & Schuler 2015: 2-7). We have decided to carry out three main tests, comparing ratios of (1) foreign assets to total assets (in an annual and monthly basis), (2) net foreign reserves to the monetary base (also in an annual and monthly basis), and (3) reserve pass-through (only in an annual basis). The analysis tests chosen were similar to those applied by Charlie Wang (2017) in his working paper in this series, on Ireland's currency board and central bank.

Even though we performed tests for the whole period in which data is available, Thailand's monetary system could have possibly been a currency board only during periods in which the baht had a fixed exchange rate with the pound sterling and full convertibility. Two periods fit these criteria. The first period goes from April 1928 (when the Currency Act, which repealed exchange controls, was established) to September 1931

(when the United Kingdom abandoned the gold standard and the U.S. dollar became the currency of reference). The second period goes from May 1932 (when Thailand returned to using the sterling as an anchor currency) to January 1942 (when Thailand re-established exchange controls during World War II).

We believe it is relevant, for a better understanding of the tests performed, to define which items constitute foreign assets. For both the monthly and the annual tests, we defined foreign assets as including the cash in baht coins, the cash on current account and fixed deposits (cash abroad, mainly in London), the silver bullion held at the Royal Mint or Treasury, the gold that was in Thailand and abroad at the time, and also any other type of investment or securities abroad. The rationale for counting baht coins as foreign assets is that they were mostly silver, which the government could have melted down and sold if necessary. Had the coins consisted of little or no silver we would have counted them as domestic assets.

Foreign Assets to Total Assets

An orthodox currency board holds few or no domestic assets. Hence, the first test we carried out for testing orthodoxy was determining the ratio of foreign assets as a share of total assets. In an orthodox currency board, the ratio should be around 1 (meaning that 100 percent of the assets are foreign).

The graphs below plot the ratio of foreign to total assets in Thailand on both a monthly and an annual basis. The thick blue line represents the ratio, and we included a dotted line to represent where the ratio should be. Since there is only data available on a monthly basis starting from the year 1922, the monthly graph covers the 1922-1942 period. The annual graph covers until 1942 starting in 1902, the year in which currency notes started to be issued in Thailand.

As seen in the charts on the next page, for most years between 1922 and 1941, the ratio of foreign assets as a share of total assets stuck close to 1 or 100%. Thailand's monetary system conformed to an orthodox currency board, then, during

this period, if analyzed from the point of view of Thailand having all, or almost all of its assets held abroad.

Net Foreign Reserves to Monetary Base

Taking as currency notes and coins in circulation as Thailand's monetary base and as net foreign assets the assets that the Kingdom of Siam held abroad during the examined time period, we have performed a second test of currency board orthodoxy based on the net foreign reserves to monetary base ratio.

In an orthodox currency board, the ratio should be very close to 1, accepting 0.2 as a margin of error due to changes in market valuation of assets or other factors (Wang, 2017: 14). A ratio below or above the aforementioned margin of error can be a sign of unorthodoxy.

As shown on the charts two pages below, in all months between April 1922 and December 1941, Thailand's monetary system conformed to an orthodox currency board, as the net foreign assets to monetary base ratio was close to one within the aforementioned margin of error, with a slight exception in the month of June 1939, when the ratio was approximately 1.25.

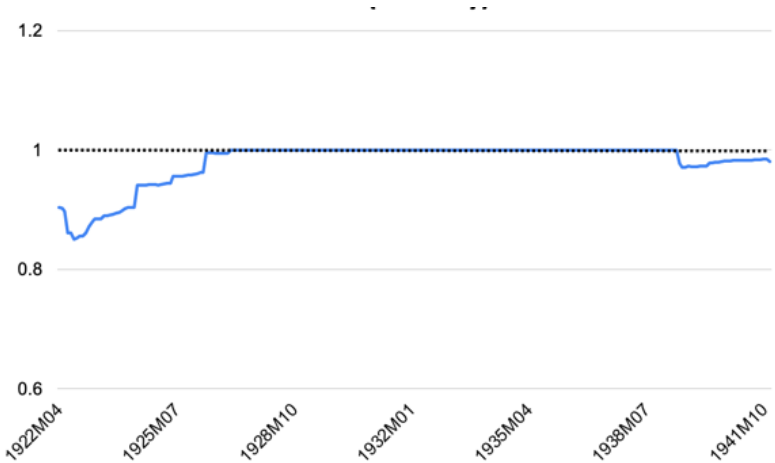


Figure 7. *Foreign assets as a share of total assests, 1922-1941 (monthly)*

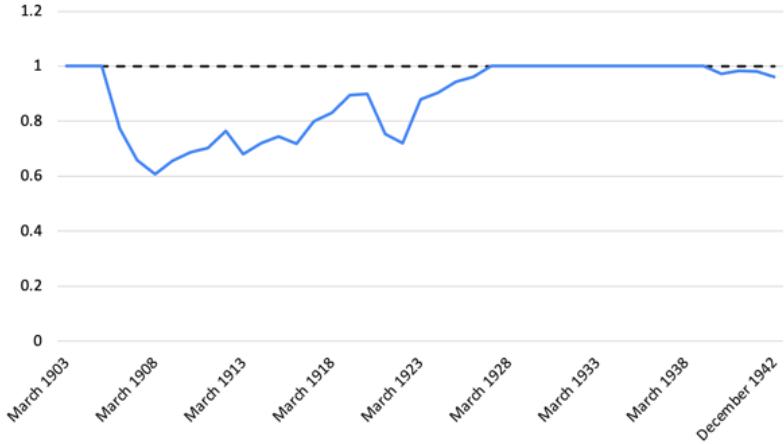


Figure 8. *Foreign assets as a share of total assests, 1903-1942 (annual)*

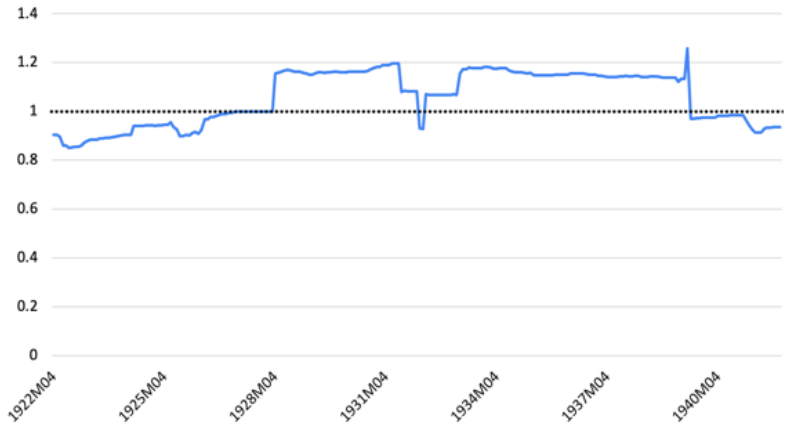


Figure 9. *Ratio of net foreign reserve to monetary base, montly (1922-1941)*

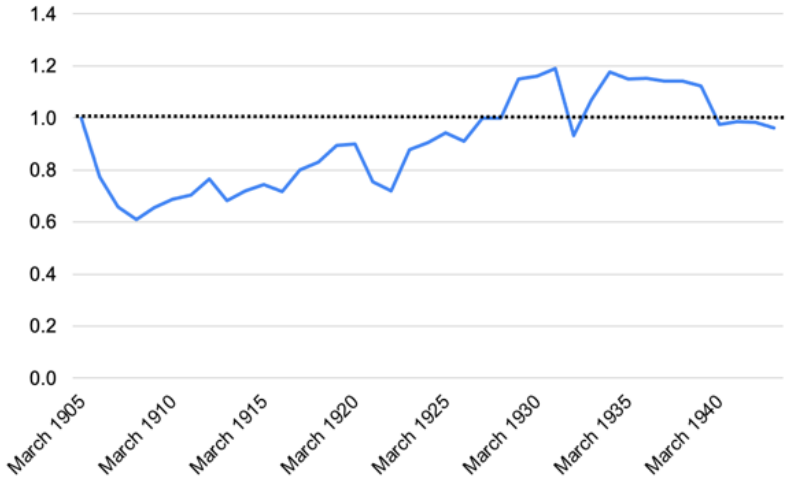


Figure 10. *Ratio of net foreign reserve to monetary base, 1904-1942 (annual)*

Reserve Pass-Through

The third and last test that we will use to measure currency board orthodoxy will be the Reserve Pass-Through ratio. This is the ratio of the total change in net foreign reserves to the total change in the monetary base. This test will be done on an annual basis, which is preferred in order to reduce the effect of seasonal and idiosyncratic factors (Wang, 2017: 15).

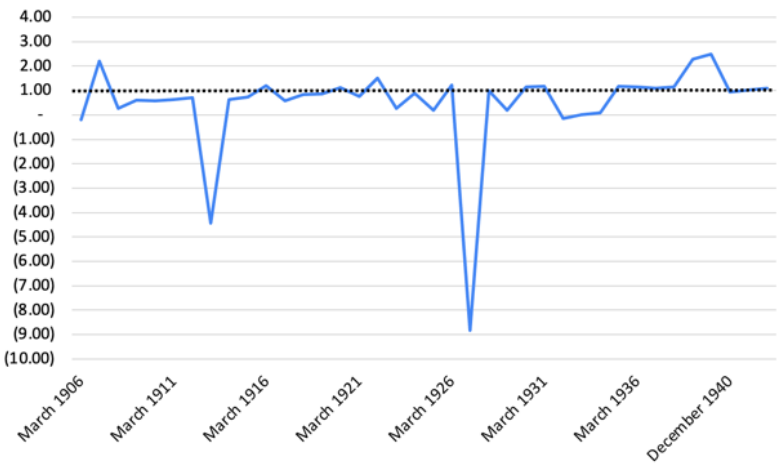


Figure 11. *Reserve pass-through (1906-1942)*

Even though several fluctuations can be seen in the graph above, after a significant deviation from orthodoxy in 1927 (when the reserve pass-through was -8.83), the ratio obtained between 1928-1942 stayed at around 1, with smaller fluctuations. Thailand's financial system conformed the most to an orthodox currency board, according to the reserve pass-through test, during that period.

Conclusion

Thailand's monetary system functioned in a way highly similar to an orthodox currency board between two periods; the first was from April 1928 to September 1931, and the second was from May 1932 until January 1942. The gap between the periods was marked by the time in which the United Kingdom abandoned the gold standard, in which the sterling was not Thailand's anchor currency, and the re-establishment of exchange controls marked the end of the second period, once World War II spread to Thailand. We reach this conclusion by analyzing the data gathered from government statistical yearbooks and the results from the tests performed in this paper.

Thailand's monetary system underwent, between 1902 and 1942, a series of changes that we find of interest, the main one being the transition from coins to currency notes as the primary form of currency since the latter were first issued in 1902. Overall, Thailand's monetary system showed important stability during the period examined, with an exception at the end of World War I, which can be considered typical if compared with the economies of other countries at the time. This stable monetary system worked satisfactorily until the end of the period in 1942, when the Thai government established the Central Bank of Thailand as a measure to prevent the Japanese, who had invaded the country as part of their strategy during World War II, from having greater control over Thailand's monetary system.

Appendix

A: Relevant legislation, 1902-1942

- **Paper Currency Act, 24 June 1902, translated in U.S. Bureau of the Mint annual report (1903: 263-264):** Allowed the government to issue notes at least 75% backed by coin and up to 25% backed by investments in securities at the discretion of the minister of finance.
- **Notification of the Minister of Finance Relative to the Issue of Government Paper Currency, 7 September 1902, translated in U.S. Bureau of the Mint annual report (1903: 264-266):** Authorized government note issue from 23 September 1902.
- **Monetary Law, 1903, cited in U.S. Bureau of the Mint annual report (1904: 331):** Defined the baht (tical) as a silver coin of 15 grams, 90 percent fine, therefore containing 13.5 grams of pure silver.
- **Paper Currency Amendment Act, 9 October 1906:** Reduced the maximum required coin reserve from 75% to 50% and correspondingly increased the maximum permitted securities reserve from 25% to 50% (Siam, Bureau of General Statistics 1916: 108).
- In 1907 the government raised a loan in London, Paris, and Berlin, using half of the £3 million in proceeds to create an exchange reserve fund. The fund was written into law by the Gold Standard Act of 1908 referred to below (Brown 1978: 206). The exchange reserve fund was separate from the paper currency reserve and was like the two-reserve system that India had at the time.
- **Gold Standard Act, 11 November 1908, translated in U.S. Bureau of the Mint annual report (1909: 273-277):** Established an exchange rate of 1 Siamese tical (Thai baht) = 0.558 grams gold. The silver tical of 13.5 grams silver (reduced from the previous value of 13.85 grams silver) was also set equal to the gold tical. The system was a gold standard rather than a bimetallic standard in intent. The silver tical coin had unlimited legal tender but the act forbade the government from issuing silver ticals in exchange for gold when their value exceeded the gold value of the baht. The exchange reserve fund was fixed at 12 million Siamese ticals.
- **Notification Suspending the Operation of Certain Sections of the Gold Standard Act, 11 November 1908, translated in U.S. Bureau of the Mint annual report (1909: 277-278):** Suspended the requirement for a gold Thai coinage and provided that instead that government would issue note for gold or at 13 baht = £1 sterling.
- **Gold Standard Act (No. II), 4 September 1919, translated in U.S. Bureau of the Mint annual report (1920: 266):** Revalued to 12 baht = £1 sterling to reflect the weakened condition of the pound sterling during the World War I and the high price of silver. This act contained a theoretical gold parity of 1 Thai tical (baht) = 0.61 grams gold = 13.5 grams silver, but it was inoperative in practice.
- **Gold Standard Act (No. III), 4 October 1919, translated in in U.S. Bureau of the Mint annual report (1920: 267):** Again revalued, to 10.88 baht baht = £1 sterling.

- **Notification of 3 January 1923:** Established an exchange rate of 11 baht = £1 sterling.
- **Currency Act, 15 April 1928, translated in U.S. Bureau of the Mint annual report (1928: 187-188):** Repealed the Paper Currency Act, the Gold Standard Act, and the Coinage Act. Defined the currency, the baht, as 0.66567 grams of fine gold. In terms of sterling, the rate remained unchanged at 11 baht = £1 sterling. The act in effect repealed exchange controls. If the system ever was a currency board, it was so only starting from this date.
- **Announcement of 21 September 1931:** Established an exchange rate of 1 baht = 0.66567 grams gold, equivalent to 2.260279 bhat = US$1. After the United Kingdom abandoned the gold standard on 21 September 1931, Siam initially remained on the gold standard. The US dollar was the intervention currency, and the exchange rate stated in terms of the dollar was that implied by the gold parities of the baht and the dollar. (See Bank of Thailand 1992: 32.)
- **Act Amending the Currency Act, 11 May 1932, cited in Bank of Thailand (1992: 28):** Returned to the pound sterling as the anchor currency at 11 baht = £1 sterling, the rate prevailing before the United Kingdom abandoned the gold standard, because of the importance of the United Kingdom in international trade and finance.
- **Emergency Currency Act (December 1941):**

Chapter 1, Currency and Units of Currency, Section 8: The prescription of the par value of the baht shall be made by a Royal Decree.

Chapter 2, Maintenance of the Value of the Baht, Section 23: For the purpose of maintaining the value of the baht, the Bank of Thailand or the Exchange Equalization Fund shall effect a spot transaction of the foreign currencies prescribed in the Ministrial Regulation as may be requested by any commercial bank in the Kingdom, provided that the amount of each transaction shall not be less than the amount prescribed by the Minister.

- **Foreign Exchange Control Act, 27 January 1942, cited in Bank of Thailand (1992: 210):** Re-established exchange control during World War II. Controls became effective on 1 February 1942.
- **Bank of Thailand Act, 16 April 1942:** Established a central bank during World War II after a recommendation by the occupying Japanese military forces to do so, although there had been proposals along these lines for many years previously. The Japanese proposed that the central bank have a Japanese adviser and Japanese department heads. The Thai government established a central bank, but on its own terms and without Japanese staff.

B: Variations in the official exchange rate, 1902-1942

Date	Baht (Siamese Tical) Exchange Rate (typically the government selling rate)
19 September 1902	1 baht = approximately 13.85 grams pure silver = Straits $0.60
27 November 1902	17 baht (ticals) = £1 sterling; switched to the pound sterling as the anchor, but this initial official rate was not realistic, in view of the previous market rate of 21.70 baht per pound sterling
17 December 1902	19.75 baht = £1 sterling; henceforth the official rate for sterling more closely tracked the market rate
30 December 1902	19.50 baht = £1 sterling
2 March 1903	19.25 baht = £1 sterling
5 March 1903	19.00 baht = £1 sterling
11 March 1903	18.75 baht = £1 sterling
22 July 1903	18.25 baht = £1 sterling
5 August 1903	18.00 baht = £1 sterling
15 August 1903	17.75 baht = £1 sterling
22 August 1903	17.50 baht = £1 sterling
27 August 1903	17.25 baht = £1 sterling
25 September 1903	17.00 baht = £1 sterling
6 February 1904	16.67 baht = £1 sterling
17 November 1905	16.00 baht = £1 sterling
14 August 1906	15.00 baht = £1 sterling
2 November 1906	13.33-1/3 baht = £1 sterling
1 December 1907	13.00 baht = £1 sterling
11 November? 1908	13.00 baht = 0.588 grams gold = 13.5 grams silver = £1 sterling; in practice, a gold exchange standard with the pound sterling

27 January 1919	13.00 baht = £1 sterling; suspended the gold parity
4 September 1919	12.00 baht = £1 sterling
4? October 1919	10.88 baht = £1 sterling
November 1919	9.90 baht = £1 sterling
November 1919	9.54 baht = £1 sterling
3 January 1923	11 baht = £1 sterling
15 April 1928	11 baht = £1 sterling = 0.66567 grams gold; re-established a parity with gold long after Britain, which had done so in 1925
20 September 1931	11 baht = 0.66567 grams of gold; preserved the gold parity when Britain abandoned the gold standard
11 May 1932	11 baht = £1 sterling; re-established sterling as the anchor and ended the gold parity
31 January 1942	1 baht = 1.557 Japanese yen = 0.32639 grams gold (nominally); switched anchor to Japanese yen after Japanese invasion of Thailand during World War II; the war and exchange controls made the gold parity merely nominal
22 April 1942	1 baht = 1 Japanese yen = 0.32639 grams gold (nominally)
15 June 1942	1 baht = 1 Japanese yen = 0.25974 grams gold (nominally); this rate lasted through the end of World War II

Sources: Bank of Thailand (1992), Brown (1975), Ingram (1971), Spalding (1920).

References

Bank of Thailand (Thanākhān hǣng Prathēt Thai). 1992. *Fifty Years of the Bank of Thailand, 1942-1992*. Bangkok: Bank of Thailand.

Bank of Thailand (Thanākhān hǣng Prathēt Thai). No date, accessed 08/11/2022. [Retrieved from].

Brown, I.G. (1972). Paper Currency: The Government Note Issues in the Reign of King Chulalongkorn. *Journal of the Siam Society,* 60(2), 23-44.

Brown, I.G. (1975). The Ministry of Finance and the early development of modern financial administration in Siam, 1885-1910. Doctoral dissertation, SOAS University of London.

Brown, I. (1978). British financial advisers in siam in the reign of King Chulalongkorn. *Modern Asian Studies,* 12(2), 193-215.

Brown, I. (1979). Siam and the Gold Standard, 1902-1906. *Journal of Southeast Asian Studies,* 10(2), 381-399.

Hanke, S.H., & Schuler, K. (2015). *Currency Boards for Developing Countries: A Handbook*., viewed November 12, 2016. Original edition San Francisco: ICS Press, 1994. [Retrieved from].

Ingram, J.C. (1971). *Economic Change in Thailand, 1850-1970*. Stanford, California: Stanford University Press.

Kemmerer, E.W. (1916). *Modern Currency Reforms: A History and Discussion of Recent Currency Reforms in India, Porto Rico, Philippine Islands, Straits Settlements and Mexico*. New York: Macmillan. In the Internet Archive, https://archive.org/details/cu31924013734508.

King, F.H.H. (1988). *The History of the Hongkong and Shanghai Banking Corporation,* v.2. Cambridge: Cambridge University Press.

Schuler, K., & Weintraub, C. (2013). India's paper currency department (1862-1935) as a Quasi currency board. Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise, Studies in Applied Economics, No.9.

Shenoy, B.R. (1950). The currency, banking, and exchange system of Thailand. IMF *Staff Papers,* 1, 289-314.

Sithi-Amnuai, P. *et. al.,* (1964). *Finance and Banking in Thailand: A Study of the Commercial System, 1888-1963*. Bangkok: Thai Watana Panich.

Spalding, W.F. (1917, 1920). *Eastern Exchange, Currency and Finance,* 1st edition, 3rd edition. London: Sir Isaac Pitman and Sons.

Stowe, J. (1991). *Siam Becomes Thailand: A Story of Intrigue*. London, United Kingdom: Hurst & Company.

Thailand (Siam). Bureau of General Statistics. 1916-1939/1944. *S.Y.T. (Statistical Year Book of the Kingdom of Siam)* (1916-1933/1935); *Statistical Year Book—Siam* (1935/1936-1936/1937); *Statistical Yearbook Thailand* (1937/1938-1939/1944). Bangkok: Ministry of Economic Affairs. [Retrieved from].

United States. Bureau of the Mint. Various years. *Annual Report of the Director of the Mint: For the Fiscal Year Ended June 30, ...* Washington: Government Printing Office.

Wang, C. (2017). History, policies and financial statements of the Irish currency commission and the central bank of Ireland (1927-1979). Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise, Studies in Applied Economics, No.79. [Retrieved from].

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Editors: ***Steve Hanke*** [a] ***& Bilal Kargı*** [b]

[a] The Johns Hopkins University, USA.

[b] Ankara Yıldırım Beyazıt University, Turkey.

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Steve Hanke
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