Turkish Economic Review

www.kspjournals.org

Volume 5 September 2018 Issue 3

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

By Ryan FREEDMAN [†]

Abstract. The Philippine monetary system and data from 1903-1948are examined, using general observations and statistical tests to determine to what extent the system operated as a currency board. This paper makes detailed annual balance sheets of the monetary system available in machine-readable form for the first time, in a companion Excel workbook.
Keywords. Philippines, Currency board, Gold standard fund, Currency reserve fund, Exchange standard fund.
JEL. E59, N15.

1. 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.

2. 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)

[a†] Department of Economics, The Johns Hopkins University in Baltimore, Maryland, USA.
✉. rfreedm7@jhu.edu

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 UnitedStates 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).

3. Implementationof 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.

4. 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	Fund in Manila Bank 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.

5. 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.

6. 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).

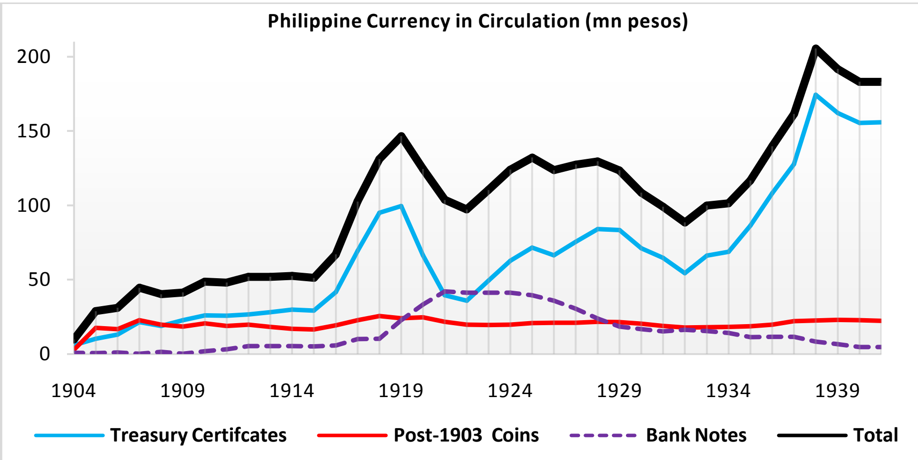

Chart 1. *Philippine Currency (1904-1941)*
Source: Statistical Bulletin of the Philippines, 1904-41.

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).

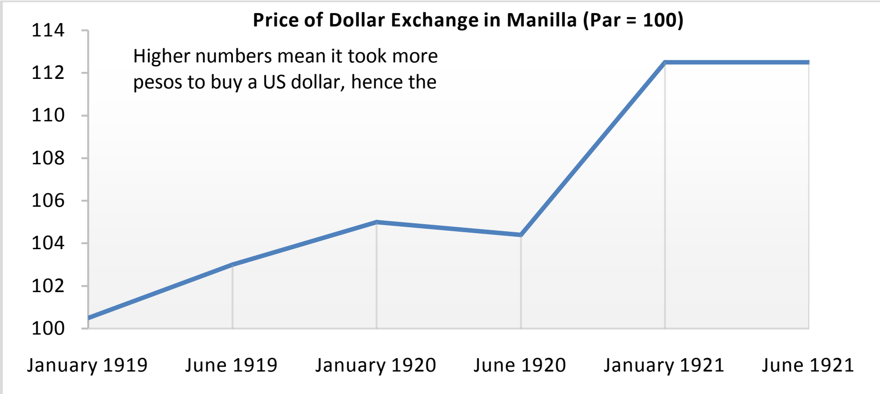

Chart 2. *Price of Dollar Exchange in Manila at Start and Halfway through the Year*
Source: Statistical Bulletin of the Philippines, 1923.

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 Chart 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.

7. 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.

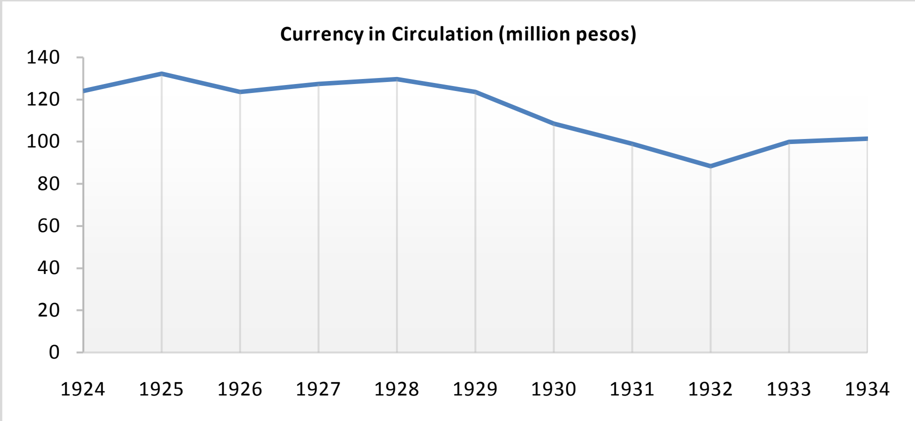

Chart 3. *Currency in Circulation*
Source: Statistical Bulletin of the Philippines, 1924-34.

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).

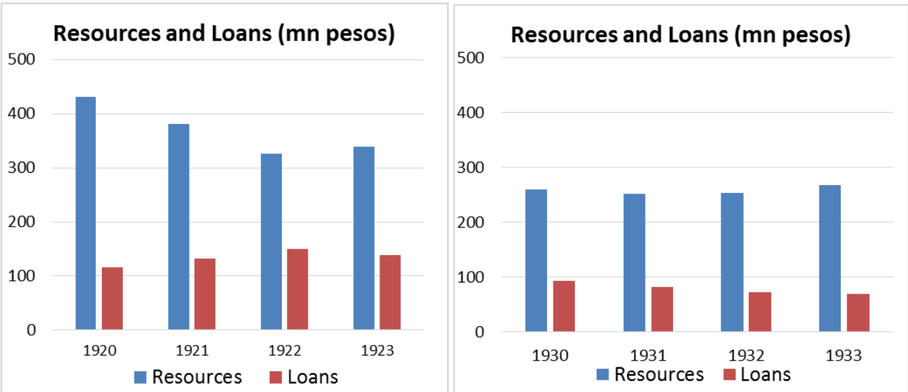

Chart 4. *Resources and Loans during the Start of 1920s and 1930s*
Source: Statistical Bulletin of the Philippines, 1920-23,1930-33.

8. 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 Chart 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 Chart 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 reformedthe 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 UnitedStates; 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.

9. 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).

10. 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 certificates; up to half could be domestic assets	Silver Certificate Reserve Same as above
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. Chart 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.

10.1. 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 Chart 5. An orthodox currency board should operate with net foreign assets typically between 100 and 110 percent of the monetary base.

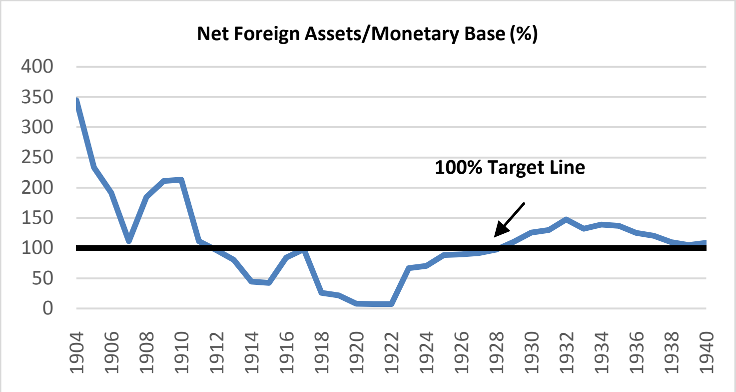

Chart 5. Net Foreign Assets/Monetary Base
Source: Annual Report of the Treasurer of the Philippine Islands 1904-1940

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.

10.2. 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. Chart 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.

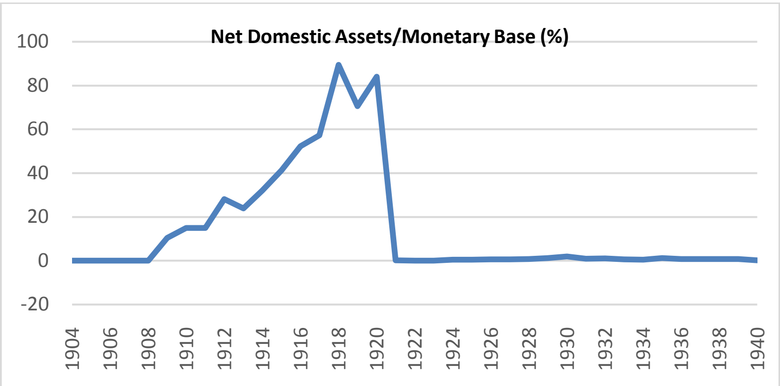

Chart 6. *Net Domestic Assets/Monetary Base*
Source: Annual Report of the Treasurer of the Philippine Islands 1904-1940

10.3. 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 Chart 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.

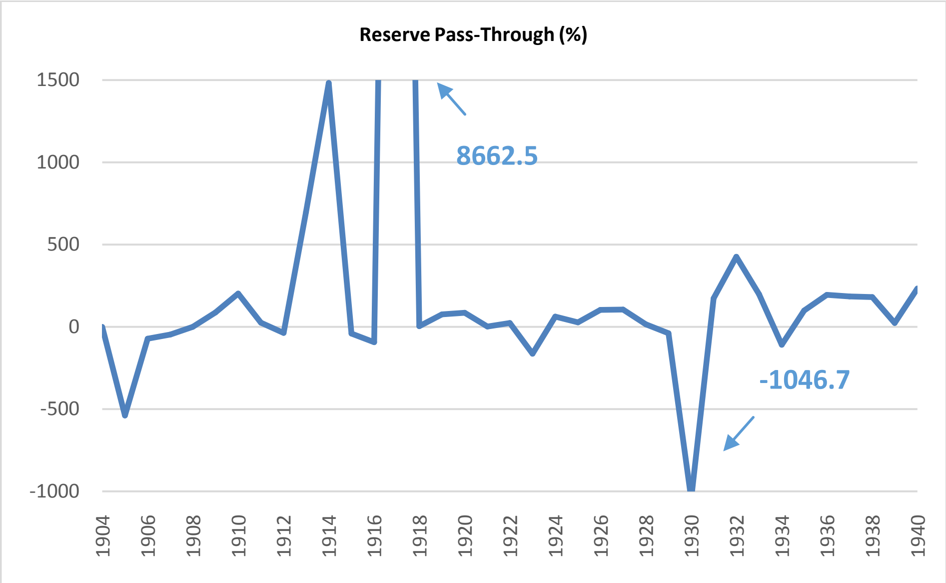

Chart 7. *Reserve Pass Through*
Source: Annual Report of the Treasurer of the Philippine Islands 1904-1940

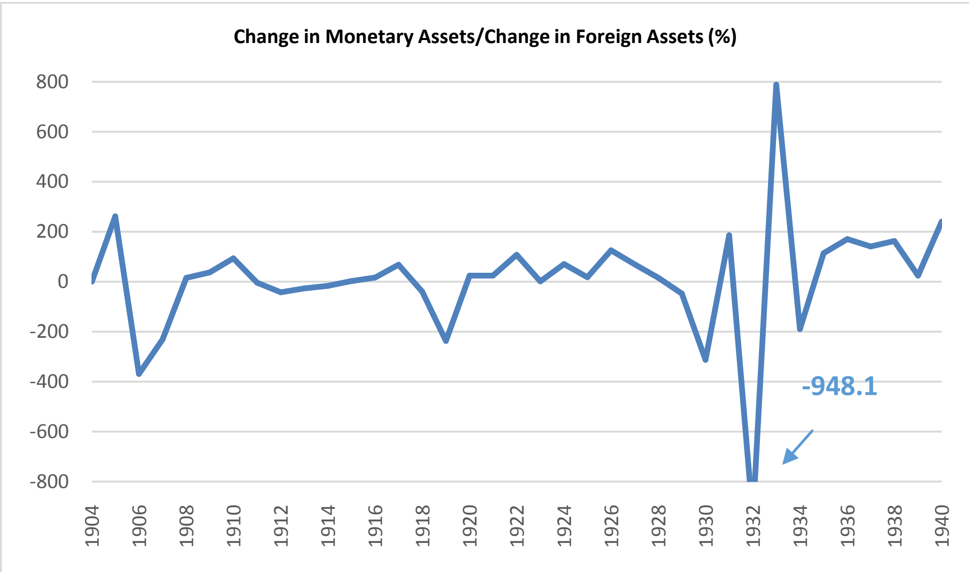

Chart 8. *Change in Monetary Base and Change in Foreign Assets*
Source: Annual Report of the Treasurer of the Philippine Islands 1904-1940

10.4. 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). Chart 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.

10.5. 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). Chart 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.

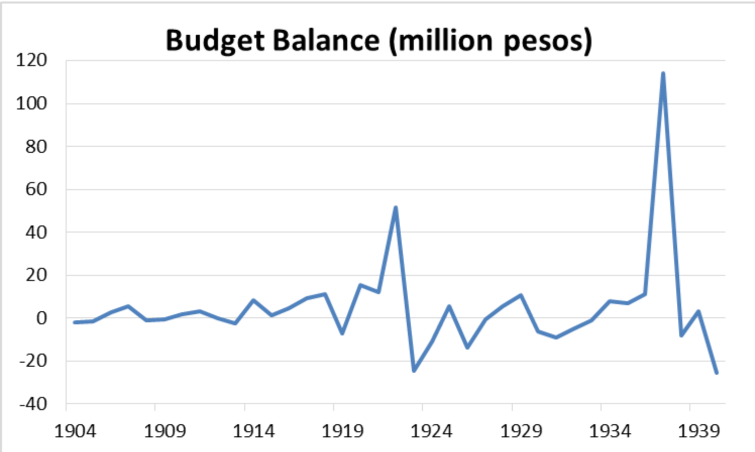

Chart 9: *Budget Balance*
Source: Statistical Bulletin of the Philippines, 1904-1920, 1940

11. 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.

Acknowledgements
I thank Dr. Kurt Schuler and Professor Steve H. Hanke for their advice and guidance in the preparation of this paper.

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.