ACCOUNTING FOR SEIGNIORAGE

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Revised Version, March, 1989

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This paper examines and evaluates the treatment of seigniorage in the published accounts of Australia's public sector. The introduction of the one dollar coin to replace the one dollar note in May 1984, and the introduction of the two dollar coin to replace the two dollar note, in June, 1988, have dramatically boosted the Commonwealth government's recorded receipts attributable to seigniorage in recent years. These moves have also helped reduce the Commonwealth government's recorded budget deficits - by over $100 million in each of 1983-84 and 1984-85, and by some $200 million to the 1987-88 Budget forecast (see Table 1).

In part, these deficit reductions were the result of the new coins being more "popular" in the community than had been the one and two dollar notes. Thus by June 1985 there were 268 million $1 coins on issue, [1] compared with the 81 million $1 notes on issue in June 1983. The addition of 187 million one dollar "currency units" on issue, minus the costs of their production generated some $180 million of "profit" or seigniorage for the -

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[1] Note that "on issue" includes coins held by the Reserve Bank. In June 1986 there were $295m one dollar coins on issue, of which 221m were "in circulation". See Reserve Bank of Australia Bulletin November 1986 and Commonwealth

Treasury Annual Reports.

government. But the Budget Papers also recorded as seigniorage income the face value, minus the costs of production, of those coins which were issued in straightforward replacement of $1 notes formerly on issue. Hence the reductions in the government's recorded budget deficit, of over $100 million for two consecutive financial years.

To students of both economics and accounting, such a result should occasion surprise. After all, "printing money" is normally regarded as a way of financing a deficit, not of reducing it. And it is exceedingly strange that simply substituting fiat money "printed" on metal for fiat money "printed" on paper should be recorded as reducing the government's budget deficit.

TABLE I

COMMONWEALTH GOVERNMENT RECEIPTS FROM PROFITS
OF ROYAL AUSTRALIAN MINT ($ MILLIONS)

	Budget Forecast	Actual	Comment
1981-82	n.a.	53.0	
1982-83	54.8	52.0	
1983-84	140.0*	129.8	$1 coin introduced May 1984
1984-85	150.7	174.8	
1985-86	7.1	37.0	Year of Peace $1 coin announced after the Budget
1986-87	10.1	7	
1987-88	212	26	Introduction of $2 coin delayed to 20th June
1988-89	271	n.a.	

Source: Commonwealth of Australia, Budget Paper No. 1 Various years.

* Of this, $102 million was stated to be: "expected to result from the introduction of the $1 coin" (see P

281 of Budget Paper No. 1. 1983).

Behind this strange result lie certain peculiarities in the accounting treatment currently accorded to seigniorage. An examination of these peculiarities forms the core of this paper. Section one asks the question "what is seigniorage?" and raises the issue of whether seigniorage earnings can legitimately be regarded as arising from the "production" of forms of money other than coinage. Section two examines the current accounting framework and explains how the recorded budget deficit is reduced when notes on issue are replaced by coins. Section three provides a critical evaluation of the existing accounting framework. It concludes that the current asymmetric treatment of note issue vis-a-vis coin issue is inadequate and inconsistent in an economy operating with a freely floating exchange rate. Section four briefly considers the question of seigniorage on increments to the economy's stock of base money which are represented by forms other than notes and coin. Section five summarizes the paper's conclusions.

1. What is Seigniorage?

In a hypothetical economy whose money supply consisted entirely of metallic coins produced and issued under the aegis

of that economy's government, seigniorage would be very easy to define. It would be the flow of (monopoly) profit accruing to the government from the production and issue of the society's money supply - i.e. the coinage. Every time a new coin was put into circulation (net of any old coins withdrawn from circulation by the government), the government would derive a profit equal to the difference between the value in exchange of the coin (its face value) and its cost of production and issue.

Moving from this hypothetical economy towards the type of economy we live in today, two problems in the definition of seigniorage arise. Firstly there is the matter of privately provided substitutes for "coin of the realm". The existence of such privately provided substitutes - ranging from private bank notes in some societies through bank chequing accounts to electronically accessed (but non-chequing) accounts in others - clearly reduces the ability of governments to extract seigniorage and simultaneously conduct responsible monetary policies. Does this mean "seigniorage" is accruing to the private sector providers of substitutes for "coin of the realm"? Secondly there is the matter of government provided substitutes for "coin of the realm". When an economy's central monetary authority issues legal tender "bank-notes", or holds deposits from private banks

(which the latter then treat as part of their "reserves"), the government is in effect providing substitutes for "coins of the realm". Does this mean "seigniorage" is accruing to the government on account of its creation of these "coin-substitutes"?

The first of these problems is more tractable than the second. When a body in the private sector of the economy creates and "issues" a substitute for a "coin of the realm", that body - except in cases of outright fraud - is incurring a liability equal to the face value of the coin-substitute issued. Because a bank-note provides its holder with no entitlement to interest, and because the private issuer of a bank-note can expect to earn some interest on the assets held behind a bank-note on issue, it will normally be profitable for a private bank to issue its own bank-notes. [2] But the profit on such a note-issue is in the nature of being a bank-profit rather than seigniorage. It represents the margin of interest earned on assets over the interest paid on liabilities, net of costs of administration etc. It is not a matter of putting a $1 instrument into circulation and then being able to regard the whole of the dollar (minus
costs of paper, printing etc.) as being income, or profit. The same applies to the profits earned by banks in association with the provision of deposit account facilities to their customers. When the customer hands over his (or her) bag of coins in "exchange" for a bank deposit, the bank has incurred a liability

equivalent to the value of the coins received. The bank cannot simply regard the sum deposited as being income, or profit.

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[2] Provided that is, that taxation does not exceed before - tax profits. This was the cause of the demise of private note issues in Australia, following the Australian Bank Notes Tax Act of 1910, which imposed federal tax at a rate of 10%p.a. on the value of any bank notes issued or re-issued on or after 1st July 1911. This tax was in addition to the pre-existing State taxes of 2%p.a. See P. 86 of Robin Gollan, The Commonwealth Bank of Australia, ANU press, Canberra, 1968.

Does this principle carry across to the case of government provided substitutes for "coin of the realm"? More precisely, does it carry across to the issue by an economy's central monetary authority of legal tender "bank-notes", and to the provision by the central monetary authority of deposit account facilities to the economy's banks? This paper will argue that the principle does not carry across to these cases. Today's accounting conventions are based, however, on the premise that government provided "coin-substitutes" should be treated no differently from privately provided "coin-substitutes". It is the basing of our accounting conventions on this premise which produces the situation where the government, by simply replacing one dollar notes on issue by one dollar coins, can reduce its recorded budget deficit (or increase its recorded budget

surplus). The next section explains the details of how present accounting conventions produce this effect.

2. The Existing Accounting Framework

Under the provisions of the Currency Act (1965) and the Reserve Bank Act (1959), the Reserve Bank has responsibility for note issue, and the Mint - part of the Commonwealth Treasury - has responsibility for coinage. The Bank is required to invest the proceeds of the note issue in specified assets, such as government securities, from which it receives interest income. This income stream offsets the Bank's expenses in producing and maintaining the note issue (replacing damaged notes, etc.), and the surplus constitutes profits of the Reserve Bank. [3] (We are ignoring other sources of Reserve Bank profits in order to simplify the analysis). The Bank is required to pay to the Commonwealth government the whole of the profits on the Note Issue. Because of lags however, the government does not receive the whole of each year's profit in the year in which it is accrued.

In the case of coinage, the Mint sells newly produced coins to the Reserve Bank at face value and receives in return a credit to the government's account at the Bank. The excess of the face value of the coins over their production cost constitutes the Mint's profits [4]. The Reserve Bank has responsibility for arranging the distribution of coinage in addition to, or in

replacement of, notes.

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(3) There are also costs associated with geographically distributing currency, which are borne (much to their displeasure) by the banks.

(4) In addition to its primary function ("the production of Australia's circulating coinage"): "the Mint also produces collection coins, medallions, medals, and like items. From time to time, when capacity is available, the Mint produces both circulating and collector coins for other countries" (Commonwealth Treasury Annual Report 1985-86 p.64). These activities normally generate additional profits.

The mechanics of the injection of notes and coins into private hands also warrant a brief explanation. In a (primitive) world with no private banking system, private sector holdings of notes and coins would increase whenever government outlays exceeded receipts or when the authorities purchased financial assets from the private sector. This simply reflects the role of notes and coins as the means of exchange. Modern banking systems, however provide an alternative means of exchange (bank deposits) and government transactions typically operate through this medium. Government outlays, for example, will be made by the means of cheques drawn on the Reserve Bank. When deposited by recipients in their private bank accounts an accounting

process is initiated which ultimately leads to the private bank's (exchange settlement) account at the Reserve Bank being credited and that of the government debited. Should individuals desire greater currency holding, their withdrawals of currency from banks will lead the banks to replenish their stocks of currency by drawing upon their exchange settlement accounts at the Reserve Bank.

As this outline indicates, private sector currency holdings are essentially demand determined. The effect of government transactions with the private sector show up primarily in movements in the exchange settlement account balances held by the banks at the Reserve Bank. To the extent that such accounts do not pay a market rate of interest, they also provide scope for the Reserve Bank to make profits and remit these to the

government. However, the effect of a modern, fractional reserve, banking system is to reduce the amount of revenue which the government can gain from the currency issue while still maintaining monetary stability. This results from the fact that bank deposits enable the private sector to economize on currency but do not involve a one for one increase in balances held in exchange settlement accounts.

For current purposes we largely ignore these complications surrounding the mechanics of a modern monetary system and return

to our original objective of examining existing accounting conventions. Consider first Figure I which indicates simplified balance sheet and income and outlay accounts for the Commonwealth government budget sector and Reserve Bank in an idealized initial situation of budget balance. Commonwealth budget revenue equals $5 billion, of which $100 million represents profit remitted from the Reserve Bank, and the remainder tax receipts. Commonwealth budget outlays equal $5 billion, of which $1 billion is interest (at 10 per cent) on the government's outstanding stock of government securities (GS). The activities of the Reserve Bank other than the maintenance of the note issue are ignored, and the costs of maintaining the note issue are assumed to be zero. The note issue in the initial situation is assumed to be $1 billion. The Reserve Bank earns $100 million interest on the government securities it holds "behind" the note issue, and remits this $100 million to the Commonwealth Budget sector. The consolidated Government/Reserve Bank position is shown to

assist the exposition which follows. While such consolidated accounts do not form part of the published public accounts, they are helpful in highlighting which elements of the two sectors' accounts net out against one another.

Figure 2 depicts the effects of a once-off $100 million increase in government expenditure, financed by the issue of notes.

The balance sheet items in Figure 2 show an increase in government securities (GS) on issue which are held by the Reserve Bank matched by an increase in notes on issue. The mechanics of the process involve the government selling securities to the Reserve Bank, writing cheques (an act of expenditure) against the proceeds which were credited to its account, and recipients of those cheques presenting them at the Bank in exchange for notes. The resulting debit to the government account restores it to its original value, leaving the outcome as indicated in Figure 2. In the current period additional government outlays occur (of the amount $100 million) and, assuming (for simplicity) that the transactions occur at the end of the period, no changes occur in the Reserve Bank's current period income-expenditure account. The balancing item in the government's income outlay account is indicated by financing transactions, a $100 million increase in bonds on issue (new GS). Accounting consistency dictates that an additional item should enter the government balance sheet,

such as an increase in physical assets (if that were the purpose of the expenditure) or a decrease in net worth. However, we omit that item.

In future periods, government outlays and Reserve Bank income are both increased by $10 million, the interest payments on the

$100 million additional securities held by the latter. This additional $10 million of receipts net of operating costs represents additional Reserve Bank profits which are paid by the Bank to the government.

It is instructive to contrast Figure 2 with Figure 3 which illustrates the treatment of an increase in government expenditure financed this time by the issue of coinage. In contrast to Figure 2, the sale of coins by the government to the Reserve Bank is treated as income (Mint profit of $100 million - assuming zero production costs) which is equivalent to the expenditure undertaken by the government in the current period. The Reserve Bank's income expenditure account shows no change in the current period. (It credits the government account on receipt of the coin, reverses the credit when the cheque drawn on that account is presented and honours the cheque by payment of coin to the presenter). Significantly no effect occurs on the balance sheet items since, unlike notes, coin is not treated as a liability. Similarly, no change occurs in future period

income expenditure accounts of either the government or the Reserve Bank.

These examples illustrate a fundamental asymmetry in the accounting treatment of coin versus note issue. Coin issue is treated as an income item in the period of issue and outstanding

coins are not regarded as a liability of the consolidated government - Reserve Bank sector. Note issue is treated as involving the creation of a liability and is thus seen not as an income item but as a financing transaction, in the period of issue. It is this asymmetry (which we examine below) which gave rise to the deficit reducing effects of the substitution of dollar coins for dollar notes mentioned at the start of this paper.

The accounting effects of substituting coins for notes are illustrated in Figure 4. Substituting $100 million of coins for $100 million of notes can be regarded as a $100 million increase in coin financed government expenditures accompanied by a $100 million decrease in note financed government expenditures. Consequently Figure 4 is equivalent to the summation of Figure 2 type effects for a note financed reduction by $100 million in government expenditures, with the effects set out in Figure 3.

The recorded income of the government, in the current period increases by $100 million (being the Mint profit). This $100 million produces a budget surplus which is used to redeem $100

million of outstanding government securities (GS). In future periods, both government outlays and income are reduced by $10 million per year. On the outlays side this represents the reduction in the government's interest liability arising from the redemption of $100 million of bonds. On the revenue side it
represents the fact that the Reserve Bank is holding $100 million less of government securities behind the now reduced note issue, and is therefore earning $10 million less interest per year and remitting $10 million less profit per year to the Budget sector. It should be noted that in practice the less than perfect correlation between Reserve Bank interest earnings and remittances of Reserve Bank profit to the Budget sector may cause some slight effects on future recorded budget deficits.

It would be erroneous to regard the $10 million per year reduction in future period Reserve Bank profit remittances to the Budget sector as having a present value of $100 million and thus being "forgone future revenue" of matching size to the $100 million of Mint profit brought to account in the current period. Those forgone future revenues are matched by reduced future interest costs. The $100 million of Mint profit, and hence of budget surplus, cannot be regarded as resulting from a mere altering of the timing of transactions, nor from switching between cash versus accruals accounting.(5)

3. The Existing Accounting Framework Evaluated

The key feature of the existing accounting framework, as far as the present purpose is concerned, is the fact that it treats the note issue as a liability of the consolidated government/Reserve

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[5] It is a common misconception that the "one dollar coin effect" on the deficit was the result of the Treasury (and hence the Mint) being part of the Budget sector and hence subject to cash accounting, while the Reserve Bank is outside the Budget sector and subject to accruals accounting. In fact the Mint was outside the Budget Sector between 1982 and the classification changes of 1985. The re-classification of the Mint from outside to within the Budget Sector had no significant effect on the recorded Budget deficit. See P. 431 of Commonwealth of Australia, Budget Statements 1985-86, 1985-86 Budget Paper No. 1, AGPS, 1985. Prior to the 1982 changes, the Mint was within the Budget sector, but seigniorage earnings were treated as a financing transaction (i.e. increases in the coin issue were treated in the way increases in the note issue are currently treated.) See p. 351 of Commonwealth of Australian, Budget Statements 1982-83, 1982-83 Budget Paper No. 1 AGPS, 1982.

Bank sector whereas it treats the coin issue as not being a liability of the consolidated government/Reserve Bank sector. This dichotomized treatment of the nation's currency issue would be unexceptionable if our monetary system were of the pre-World War One "classical" gold standard type.

Under a "classical" gold standard system, there are two distinct types of coins produced at a nation's mint and in circulation in the nation's economy: standard coins and token coins. Standard coins are those "to which the mint of the country in question is open without charge or at a low charge, and the value of which is therefore tied firmly to that of the metal of which it is made." [6] Token coins are those whose metal content has a value substantially below the coins' face values. The mint is not "open" to the minting of token coins. Rather, the government arranges for the purchase of the raw materials etc, issues the coins at their face values, and adjusts the supply on issue so as to accord with the requirements of the population for coins for the demoninations in question. Clearly the

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[6] A. Marshall, Money, Credit and Commerce, 1923 Macmillam, p.14. Under a gold standard the metal of which a country's standard coins are made is gold.

production and issue of token coin generates seigniorage for the government while the production and issue of standard coins does not. (7)

Bank notes may form part of the currency in circulation of a country adhering to a "classical" gold standard system, but these notes must be fully convertible on demand into standard coin. Whether the issuer of the notes is a private bank or the country's central monetary authority, there is an onus on the issuer to maintain convertibility to standard coin, by maintaining appropriate reserves of gold. If gold backing of l00 per cent were maintained - earmarked to back the note issue and not available for other purposes such as the meeting of customers' withdrawals from bank deposits etc, the issuer of notes would incur net costs associated with printing, handling, replacement of soiled notes, etc. There would be no profit in the activity. If gold backing of less than

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(7) Since standard coins can be expected to lose weight in circulation, the maintenance of the standard coin circulation will normally in fact impose net costs on the Mint. A country which kept its Mint "open" to gold, but which imposed small charges to offset these costs and the costs of handling, etc. would not of course be in breach of the spirit of the "rules of the game" of the classical gold standard. Hence the reference to "low charges" by

Marshall in the passage quoted above.
100 per cent was maintained, either explicitly or via an implicit "pooling" of the issuer's gold reserve backing for the note issue with gold held behind other liabilities, there would be scope for profit from note issue. But such profit would be in the nature of banking profit rather than seigniorage.

If note-issue maintenance costs were x per cent per annum of the face value of the issue and the accepted prudent level of gold backing were g per cent; the annual profit from a note issue of value V would be:

$$i(1 - g)\ V - xV \qquad (1)$$

where i represents the average rate of interest earned on those assets other than gold held behind the note issue. Note that under the type of monetary system outlined above, the economy's standard gold coin plays a dual role of cornerstone of the internal payments system and basis for the making of external payment settlements. Bank-notes are promises to pay standard coin, on demand. Whether they are issued by private banks or by the country's central monetary authority, it is only right and proper that they appear in the issuer's accounts as liabilities, and that the issuer keep record of the assets held behind those liabilities. To the extent that the issuer is able to maintain convertibility with

less than l00 per cent gold backing, the issuer will be able to earn a banking profit of the standard type.

The government can tap this profit stream either by levying taxes on private note-issues, or by setting up a government-owned "bank" to issue notes side by side with private issues, or by setting up a government-owned "bank" with a monopoly over note issue. In each case revenue will accrue to the government, but provided the monetary system is of this "classical" gold standard type, there seems to be no reason for regarding this revenue flow as being seigniorage. Why should the token coin issue be accounted for differently? If the government were under a legal liability to exchange token coins for standard coins, on demand, then it would be appropriate for the face value of the token coin issue to be regarded as a liability of the government - and accounted for in the same way as a bank-note issue. It is the fact that the government does not bind itself to the convertibility of token coins to gold at full face value that renders the token coin issue distinctive and makes it appropriate for the difference between the face value of a token coin and its costs of production and issue, to be treated as seigniorage - or profit accruing to the issuer in the period of issue. Referring to the silver and bronze token coins on issue in Britain under the pre-l9l4 gold standard, Alfred Marshall said: "..these coins were only inconvertible notes for various

quantities of gold, printed on common metals: but they were kept at their nominal values, by making them legal tender up to certain amounts, and adjusting their supply to the needs of the people.: [8] What distinguishes a token coin from a bank-note under a classical gold standard system is thus not so much the fact that the former is "printed" on metal and the latter on paper, but the fact that the token coin is "inconvertible" (to standard coin) while the bank note is "convertible".

Under such a "classical" gold standard system, the scope for government revenue raising from seigniorage will depend on the profit per unit associated with the production of token coins, and the extent by which the volume of token coinage on issue can be increased over a given period without upsetting the population's ready acceptance of the coins at face value vis-a-vis standard coin and bank notes. This latter will depend in turn on:

(i) the appetite of the non-bank public for token coins of the denominations on issue, as "small change" per se;

ii) the extent to which token coins are "legal tender".

iii) the extent to which banks can be persuaded to hold token coins rather than gold coins or other assets as backing for their note-issues, and other liabilities.

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(8) A. Marshall, op., p. 59

Consider the situation where a government-owned "bank" has the monopoly of the note-issue, and is earning bank profit on this activity at an annual rate of:

$$\pi = i(1 - g)V \qquad (2)$$

where the notation is as in (1) above, but x (note - issue maintenance costs) has been assumed equal to zero.

If this government bank was "persuaded" (or required) by the government to hold a quantity of token coins of face value T, behind its note issue, then ceteris paribus, the government will receive a once and for all income flow from the seigniorage on expanding the token coin issue by T. Ignoring costs of minting etc, this one-off revenue flow will be equal to T. But there is a second effect on the government's budget. Assuming the government bank continues to hold the prudent gold reserve ratio behind the note-issue, the new token coin holding will have displaced interest earning assets from the bank's balance sheet. Bank profit will be reduced by iT, this year, by the same amount next year, and so on in perpetuity - other things being equal. The present value of this stream of bank profits foregone is T. The government's

action has amounted to the conversion of a stream of banking profits into a "capitalized" seigniorage item of equivalent value.

Consider a second type of government initiative that might be taken within the framework described above. The government perceives a popular "demand" for a token coin of a denomination not previously in circulation. The government makes an issue of the new coin, the total face value of the issue being T*. Assume that the community's overall holdings of currency (coins plus bank notes) are unaffected by the introduction of the new coin. And assume further that it is notes which are displaced, on a dollar for dollar basis by the new coins, with the community's holdings of previously existing token coins, and standard coins, remaining unchanged. As in the previous example there will be a once and for all flow of seigniorage to the government-equal to T*, and the forgoing of a flow of iT* per year of banking profit, in perpetuity, cet. par. and ignoring costs of production/administration etc. Once again the present value of the banking profit stream forgone is of the same size as the value of the one-off seigniorage flow accruing in the year of the new coin issue. If the new token coins issued by the government were of the same denomination as the "government" bank notes they displaced, it might at first seem strange that there is any effect from this on the government's consolidated income-expenditure accounts. But in the context of a

"classical" gold-standard system, there is nothing inconsistent or misleading in these accounting results. Each of the two types of government initiative outlined above does substitute a one-off flow of seigniorage for a stream of banking-profits with equivalent present value. The accounts simply reflect this.

An accounting framework embodying a dichotomized treatment of the nation's currency issue - treating the note issue as a liability of the consolidated government/Reserve Bank sector, but treating the coin issue as not being a liability of that sector -would thus be unexceptionable for an economy with a monetary system of the "classical" gold standard type. Indeed, certain of the requirements traditionally associated with a "classical" gold standard system, can be absent, and this basic conclusion continue to be valid. To be specific: standard coins need not be part of the currency in circulation - in fact need not even exist; and the "standard of value" underlying the currency issue need not be a precious metal, it can for example be the currency of a foreign country. As long as a country's "bank-notes" on issue are pegged rigidly to defined quantities of some objective standard of value (9) and are fully and freely convertible into that underlying standard of value, then it remains appropriate for the note issue to be treated as a liability of its issuer. Where a country is ostensibly on a "fixed exchange rate", but there is legislation restricting domestic

residents from maintaining privately holdings of the underlying standard of value within

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[9] For the present purpose an objective standard of value is simply something with a market price but whose quantity in existence cannot be increased at the discretion of the consolidated government/central monetary authority sector of the domestic economy.

the country, or from attaining the same basic objective through entering into transactions with foreigners, or where there exists a general belief that the government lacks either the capacity or the will to maintain convertibility at the existing parity, in the face of any sustained gold/foreign exchange drain, the treatment of government issued bank-notes as government "liabilities" become questionable.

To clarify this, consider the position of a country with a domestic currency circulation consisting of token coins and "bank-notes" issued by the central monetary authority, and which adheres to an exchange-rate policy of strict free-floating. The consolidated government/Reserve Bank sector might buy or sell foreign exchange (or bullion) from time to time - in the context of making or receiving settlements on "ordinary" transactions between itself and foreign-resident persons or entities - and it might hold stocks of foreign exchange (or bullion) as part of a cost-minimizing strategy towards these "ordinary" transactions, but it does not buy or

sell foreign exchange (or bullion) with the intention of affecting the foreign exchange value of the domestic currency unit. The foreign exchange value of the domestic currency unit is determined by "market forces". To use the modern idiom, the float is "squeaky clean".

Under this type of system , there is nothing in principle distinguishing the country's "bank-note" issue from its coin issue. In neither case is a par-value against some underlying "objective" standard of value defined and published by the issuing authority. In neither case does the issuing authority commit itself to the maintenance of such a defined and published par value, by offering full and free convertibility into that which constitutes the underlying standard of value, at the "exchange rate(s)" specified. Using the term in this technical sense - as it has been used already above - both the notes on issue and the coins on issue are inconvertible. Since they are inconvertible, there is no sense in the issuing authority treating them as liabilities.

The "bank-note" issue should be accorded the same accounting treatment as the coin issue. If the government creates an additional hundred dollars' worth of units of inconvertible currency, and engages in purchases which put this $100 into circulation, the government has accrued a flow of income of $100 - net of the costs of production of the currency units - in consequence. This is so whether the medium on which the additional units of the inconvertible currency were "printed"

was metal, paper, or anything else. As in the gold standard case described above, it is convertibility which is the key factor in determining whether a seigniorage profit equal to the face value net of the costs of production accrues to the issuer upon the issue of additional units of currency. If there is convertibility, there is a liability to "repay". If there is no convertibility, there is no liability to "repay". The face value of the currency units issued accrues as income to the issuer.

Under this "perfectly free-floating" monetary system, then, there is no justification for a dichotomized accounting approach which accords to "bank-notes" issued by the central monetary authority a treatment which is in any way substantially different from the treatment accorded to the coin issue. If the dichotomized treatment which <u>is</u> appropriate under a gold standard type system is in practice applied in a "perfectly free-floating" monetary system, there will be a tendency for misleading accounting results to be generated. The accounts will mislead because: they will record liabilities where there is in truth no liability; and they will fail to record income when seigniorage income has in truth accrued in consequence of note issues. If an accounting period occurs in which a new coin-issue displaces a pre-existing issue of notes - those notes being withdrawn by the government and "destroyed", the accounts for that period will <u>look</u> peculiar. But in a sense they are <u>less</u> misleading

that the accounts for years in which no such coin/note substitutions occur. By eliminating from the accounts some of the "liabilities that aren't liabilities", and by bringing to account some of the seigniorage income accrued in the past that was previously ignored, the substitution of coins for notes reduces the extent to which the accounting records are at divergence with reality.

In the type of "perfectly free-floating" monetary system described above, the "bank-notes" issued by the central monetary authority in the past and currently in circulation, generate no flow of "true" banking profit for the government.

If the accounting framework appropriate for a gold-standard type system is in use, there is the illusion of a flow of banking profit. The central monetary authority will be holding interest-bearing assets (typically government bonds) "behind" the note issue. The interest accruing on these assets (net of costs of administration etc.) will be recorded as the "profit" on the note issue and this will accrue to the government. But it was the government which paid this money to the central monetary authority in the first place. The government pays interest to the cental monetary authority on the bonds backing the note issue. It then receives the same money back as the "profit" on the note issue. The bonds held behind the note issue exist only because the seigniorage income on the note issue was not recognized and brought to account at the time of its accrual. To balance the books, it was necessary for this omitted seigniorage to be matched,

dollar for dollar, in the government's accounts for the year of its accrual by increased indebtedness. The bonds representing this fictitious indebtedness are held by the central monetary authority (directly or indirectly) as assets behind its note issue "liabilities". The flow of interest on this fictitious indebtedness is as much an accounting fiction as is the indebtedness itself. The same applies to the reported "banking profit" on the note issue.

To see this more clearly, imagine what would happen in the circumstances described above, if the government: created a special issue of zero coupon, l0 year bonds redeemable at call for their face value (in inconvertible domestic currency); sold these to the note issue department of the central monetary authority at face value; and used the proceeds to redeem from the note issue department an equivalent quantity of old interest-bearing government bonds. This would have the effect of cancelling out a certain flow of interest payments from the government to the central monetary authority, and eliminating dollar for dollar an equivalent flow of profit from the latter to the former - each year for the next ten years. But there would be no seigniorage brought to account, since there is no question of new "currency" having been created. The "profitability" of the note issue department has been reduced, but the government is no worse off - its outlays and receipts have decreased <u>pari pasu</u>, its budget deficit/surplus is unchanged.

Two points are demonstrated by the above: Firstly, what appears in the accounts as a "banking profit" accruing in consequence of the note issue is in fact a return of interest associated with one part of the consolidated government/Reserve Bank sector holding interest-bearing debt issued by another part of the same sector. It is not "banking profit" in any normally accepted sense of the term. And secondly, what appears in the accounts as a "banking profit" is not some sort of quid pro quo providing the government with a steady flow of income rather than the one-off capitalized value of that flow which would appear in the accounts if accrued seigniorage were recognized and brought to account. As the above example indicates, the "banking profit" can be eliminated from the accounts without bringing accrued seigniorage to account. And doing this makes no difference to the government's recorded budget deficit. At the end of the scenario outlined above, it remains possible for the government to redeem the new zero-interest bonds, have the note-issue department hold a coin issue (or even a single "coin") of the same value in their stead, as backing for the note issue, and bring seigniorage income equal to the face value of the coin issue to account - while having no effect on recorded note-issue department profitability at all.

To summarize, in a country with a "perfectly free-floating" monetary system and the issue of "bank-notes" a

government monopoly, it would be misleading to employ an accounting framework which recognized seigniorage only on the coin-issue and treated the note-issue as a liability of the issuer. Government issued paper money is often spoken of as being non-interest bearing national debt. But inconvertible government issued currency, whether notes or coin, is more than simply non-interest bearing government debt. When a government redeems $100 of interest-bearing government debt with $100 of newly issued inconvertible government currency notes, it does two things: it wipes out its liability to pay interest on the $100 of principal for a stream of years; and it also wipes out its liability to "repay" the principal. In doing the latter, the government accrues $100 worth of seigniorage income. It accrues this income, whether its accounting conventions recognize this fact and record it, or whether its accounting conventions ignore it and it goes unrecorded. In the latter circumstances the effects of the inappropriate accounting framework will tend to be cumulative.

A stock of unrecorded seigniorage income will tend to accumulate "behind" the published accounts, matched dollar for dollar by an overstated level of government indebtedness. This stock will tend to sit there unnoticed, until something happens to "unlock" part of it. Replacing $1 notes in circulation by $1 coins "unlocked" several tens of millions dollars worth of it in 1984. Replacing $2 notes in circulation by $2 coins, or substituting holdings of coin for holdings of government bonds in the balance sheet of the note

issue department of the Reserve Bank can "unlock" still more of it.

The basic problem is that the accounting framework in use in Australia has remained basically unaltered, in regard to its treatment of seigniorage on the note issue, since before the first world war while our monetary system has evolved from being one for which that treatment was unexceptionable, to being one for which it is now clearly inappropriate.

4. Banking Sector Deposits with the Central Monetary Authority.

This section addresses the question: does the government accrue seigniorage income when an increase occurs in the volume of deposits held by the domestic banking sector with the central monetary authority? Under a classical gold stardard system the answer to this question is fairly straightforward and in the negative. The deposits must be regarded as titles to specified quantities of standard coin. Even though legislation might require that banks maintain specified fractional reserves on deposit with the central monetary authority at all times, so that a full pay- out would only be required in the event of a bank's liquidation, it would still be incumbent upon the central monetary authority to regard itself as "liable" for the value of the deposits, and to record this on its balance sheet accordingly. If there is full liability for the deposits, in standard coin,

there is no seigniorage income accruing. If the central monetary authority is able to earn income by holding interest-bearing securities in some fraction behind these deposits - while holding sufficient gold to maintain full confidence in their "convertibility", this income is in the nature of a banking profit.

Under the type of "perfectly free-floating" monetary system referred to earlier, the answer to this quesion is not so straightforward. On the one hand, the banking sector's deposits with the central monetary authority are "convertible" only into inconvertible paper money in this type of system, suggesting that the deposits should be treated as simply "tickets" to so many dollars worth of inconvertible notes. The question then arises: should the central monetary authority regard a "ticket" to a bundle of inconvertible notes as being of any greater "value" as a liability than would the bundle of notes over which it gives claim, were they "on issue" rather than the ticket to them? On the other hand, this same chain of reasoning would suggest that the face value of <u>all</u> bonds sold by the government, under this type of monetary system should be regarded as "income" (in the period of issue) rather than "debt" - a conclusion which clearly seems excessive. Taking the argument back in the other direction, if we decide that the standard type of government bond should be regarded as imposing on the government "liability to repay" the relevant principal, are there any

distinguishing features of the banking sector's deposits with the central monetary authority which render a different accounting treatment appropriate?

Two candidates for this role appear to be present. The first is the rate of interest which the deposits carry. This is typically so low that were it not for government imposed constraints on the deposit levels required of the banks, the banks would redeploy (at least some of) their funds elsewhere.

But this could be taken as meaning that the "banking profit" resulting from the central monetary authority's net interest earnings on the banking sector's deposit monies is inflated by an element of taxation - a tax on banking sector income - rather than being of any more fundamental significance. The second candidate is more subtle. What does the community expect the government to do about the repayment of principal on ordinary government bonds? Does this differ markedly from the expectation regarding the repayment of principal of the banking sector's deposits with the central monetary authority?

In both cases, rollover would appear to be the outcome regarded as most likely. But under circumstances where rollover is not an option open to the government, is there an expected difference? If the community expectation is that under such circumstances banking sector deposits with the central monetary authority would be paid out by the creation of new currency notes, while bond holders would be paid out by other means (selling new bond issues to other persons/bodies,

raising the money by taxation or by selling physical assets, etc) then this provides a basis for treating the two types of government sector "liability" differently.

There is not the space here to pursue this argument more thoroughly. It should be noted however, that if the argument is rejected, and an accounting framework is employed in which banking sector deposits with the central monetary authority are treated as "fully-recorded" government sector liabilities to the banks, then certain anomalies can arise. Imagine a situation in which the central bank requires each of the country's trading banks to maintain a reserve deposit at the central bank equivalent to r per cent of its "prescribed liabilities", and that a very low interest rate of s per cent per annum is credited to these reserve deposits. Now the government changes the rules so that only one half of r needs to be actually deposited at the central bank, but the other half must be held by each trading bank in notes and coins. Assume also that at the same time the interest rate credited to reserve deposits is doubled to 2s. The banks are neither better off or worse off, in true terms, than before. Nor is the consolidated government/central bank sector. In the accounts, however, the government sector will appear to have benefitted from the exercise. The face-value of the new notes and coin issued to meet the banks' reserve holdings requirement will (net of production costs etc.) accrue to the government as a once-off flow of seigniorage income [10] The

"banking profit" recorded by the central bank will have been reduced, since it is still meeting the same interest bill on the banks' reserve deposits but is now able to earn interest on only half as great a volume of assets held "behind" those reserve deposits. But this reduced "banking profit" is matched dollar for dollar, in the government's accounts by the reduction in its debt interest bill resulting from its using its seigniorage income to redeem government bonds previously held by the central bank. In the current period the recorded outstanding debt of the government is reduced by the extent of the seigniorage income brought to account. In future periods the government's recorded outlays and receipts are reduced pari passu.

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(10) This assumes seigniorage is being brought to account appropriately on the country's note issue.

This suggests that there is a problem in rejecting the argument that banking sector deposits with the central monetary authority should be accorded an accounting treatment equivalent to the note issue. If that argument is accepted. then in a monetary system of the "free-floating" type we should record seigniorage as accruing to the government when banking sector reserve deposits with the Central bank are

increased, in the same way as we should record seigniorage income as accruing to the government when the coin issue or the note issue are increased.

5. Conclusions

This paper has examined how seigniorage proceeds are currently treated in the published accounts of Australia's public sector. It has also discussed how seigniorage proceeds should be treated, and how broadly seigniorage should be defined. The paper's conclusions can be summarized as follows:

. the treatment currently accorded to seigniorage proceeds on the Australian coin issue - as a revenue item (above the line) - is appropriate. To return to the pre-1982 situation, with such proceeds treated as a financing item, would represent a retrograde step.

. the current treatment effectively ignores totally seigniorage proceeds on the Australian note issue[11] In doing so, such proceeds are treated - by default - as a financing item (below the line). This is inappropriate. Where a country is on a gold-standard - like monetary system, with guaranteed convertibility of domestic currency notes into some "objective standard of value", it is appropriate to view seigniorage as being confined to the coin issue.

But such a situation is not the case in today's Australia. Australia's coin issue and Australia's note issue are equivalents and should not be accorded asymmetric accounting treatments.

. the current treatment effectively ignores totally seigniorage proceeds on that part of the base money supply represented by forms other than notes and coin.

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11) Section 41s(2) of the Reserve Bank Act 1959 provides that all notes of a value of one pound ($2), or less, which have been in circulation for more than twenty years be deleted from the record of notes on issue - i.e. "written off" as liabilities. Higher denomination notes are similarly "written off" after forty years. This provides some scope for seigniorage on the note issue eventually to appear as Reserve Bank profit remitted to the Budget sector. However this does not appear to have occurred in practice. The value of notes fall into the above categories has not been "written off" as such but transferred to a provision for unpresented notes in the Bank's accounts.

In doing so, any such proceeds are treated - by default as a financing item. This is a mater of greater complexity than the note issue, and requires further research. On the basis of the discussion in section four above, it was tentatively concluded that in economic systems such as present day Australia's, seigniorage proceeds do occur on this component of the base money supply, and that such proceeds should be accorded the same treatment as seigniorage on the coin issue and the note issue.

FIGURE 1

THE INITIAL SITUATION

	BALANCE SHEET ($ MILLIONS)		INCOME/EXPENDITURE ACCOUNTS ($ MILLIONS)			
			CURRENT PERIOD		FUTURE PERIODS	
	ASSETS	LIABILITIES	INCOME	EXPENDITURE	INCOME	EXPENDITURE
PANEL A GOVERNMENT		10,000 GS	100 RB profit 4,900 tax etc	1,000 interest 4,000 other	as per current period	
PANEL B RESERVE BANK	1,000 GS	1,000 note issue	100 interest	100 profit paid to govt.	as per current period	
PANEL C GOVERNMENT/RB CONSOLIDATED		9,000 GS 1,000 note issue	4,900	900 interest 4,000 other	as per current period	

FIGURE 2

NOTE FINANCED ADDITION TO GOVERNMENT EXPENDITURE

	BALANCE SHEET ($ MILLIONS)		INCOME/EXPENDITURE ACCOUNTS ($ MILLIONS)			
			CURRENT PERIOD		FUTURE PERIODS	
	ASSETS	LIABILITIES	INCOME	EXPENDITURE	INCOME	EXPENDITURE
PANEL A GOVERNMENT		10,000 GS + 100 New GS	100 RB profit 4900 tax etc financing transaction 100 new GS	1,000 interest 4,000 other +100 additional	110 RB profit 4,900 tax etc	1010 interest 4000 other
PANEL B RESERVE BANK	1,000 GS + 100 new GS	1,000 note issue + 100 new note issue	100 interest	100 profit to gvt.	110 interest paid	110 profit paid to gvt
PANEL C GOVT/RB CONSOLIDATED		9,000 GS 1,100 note issue	4900 financing transaction 100 new note issue	900 interest 4100 other	4900	900 interest 4,000 other

FIGURE 3

COIN FINANCED ADDITION TO GOVERNMENT EXPENDITURE

	BALANCE SHEET ($ MILLIONS)		INCOME/EXPENDITURE ACCOUNTS ($ MILLIONS)			
			CURRENT PERIOD		FUTURE PERIOD	
	ASSETS	LIABILITIES	INCOME	EXPENDITURE	INCOME	EXPENDITURE
PANEL A GOVERNMENT		10,000 GS	100 RB profit 4,900 tax etc. + 100 mint profit	1,000 interest 4,000 other + 100 addit-ional	100 RB profit 4,900 tax etc.	1,000 interest 4,000 other
PANEL B RESERVE BANK	1,000 GS	1,000 note issue	100 interest	100 profit paid to govt.	100 interest	100 profit paid to govt.
PAENL C GOVE/R.B. CONSOLIDATED		9,000 GS 1,000 note issue	4,900 tax etc 100 mint profit	900 interest 4,100 other	4,900	900 interest 4,000 other

FIGURE 4

COIN FINANCED REDEMPTION OF $100 MILLION NOTES

	BALANCE SHEET ($ MILLIONS)		INCOME/EXPENDITURE ACCOUNTS ($ MILLIONS)			
			CURRENT PERIOD		FUTURE PERIODS	
	ASSETS	LIABILITIES	INCOME	EXPENDITURE	INCOME	EXPENDITURE
PANEL A GOVERNMENT		10,000 GS - 100 re-deemed	100 RB profit tax etc. 4,900 + 100 mint profit financing trans-action 100 GS redeemed	1,000 interest 4,000 other	90 RB Profit tax etc. 4,900	990 interest 4,000 other
PANEL B RESERVE BANK	1,000 GS - 100 re-deemed GS	1,000 note issue - 100 notes re-deemed	100 interest	100 profit paid to govt.	90 interest	90 profit paid to govt.
PANEL C GOVT/RB CONSOLIDATED		9,000 GS 900 note issue	4,900 100 mint profit financing trans-action 100 notes redeemed	900 interest 4,000 other	4,900	900 interest 4,000 other