

Australia: Selected Issues

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AUSTRALIA

Selected Issues

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Approved by Asia and Pacific Department

September 21, 2006

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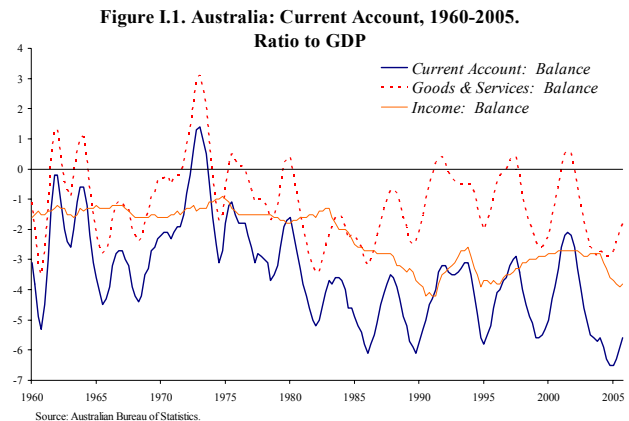
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I. AUSTRALIA'S LARGE AND SUSTAINED CURRENT ACCOUNT DEFICITS: SHOULD CONSENTING ADULTS BE TRUSTED?¹

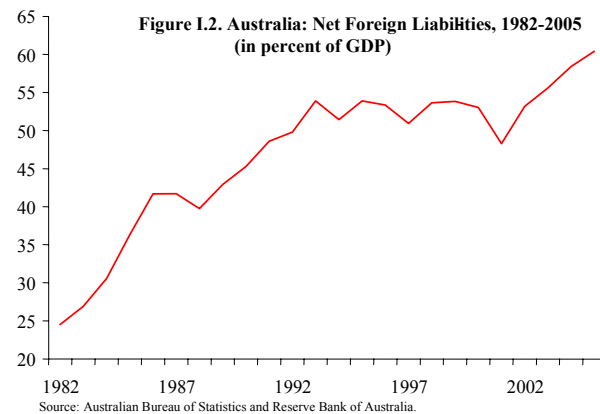
1. **Australia has persistently run large external current account deficits, raising questions about their sustainability.** The debate in Australia has stressed that these deficits originate in the private sector, reflecting the decisions of “consenting adults.” The question therefore becomes whether these consenting adults should be trusted or whether there are risks associated with large current account deficits. This chapter summarizes the debate in Australia and discusses the country’s external deficits from several angles. The chapter analyzes saving-investment balances, the sustainability of large current account deficits, the risks associated with high current account deficits and large foreign liabilities, and concludes with a discussion of the country’s balance sheets.

A. Introduction

2. **Australia’s external deficits are high and persistent.** Since the floating of the Australian dollar and the liberalization of international capital flows in the mid-1980s these deficits have averaged 4.5 percent of GDP. This is high compared with other advanced economies, where the average current account balance is about zero. Persistent current account deficits have translated into rising net foreign liabilities, reaching 60 percent of GDP in 2005; Australia’s net foreign position is unusually negative by OECD standards.



3. **External deficits have triggered an extended and lively debate in Australia.**² The prevailing view used to be that current account deficits were a significant risk to Australia’s economic stability, and reigning in these deficits was one of the goals of economic policy. Indeed, a substantial fiscal consolidation in the second half of the 1980s was in part aimed—in the end, unsuccessfully—at

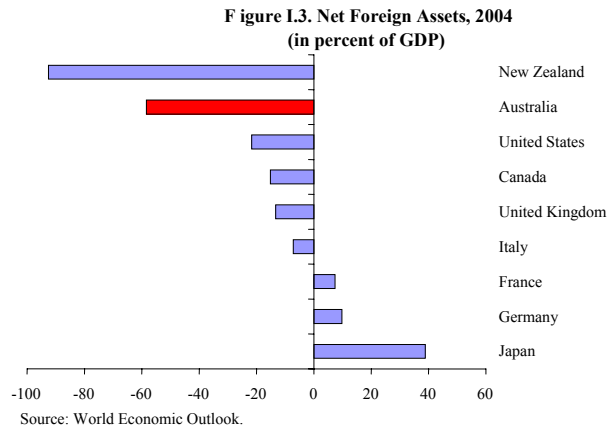


¹ Prepared by Benoît Mercereau (ext. 3-4986).

² Horne (2001) and Gruen and Sayegh (2005) survey the current account debate in Australia. The current account deficit is so prominent in policy discussions in Australia that it is commonly referred to using the acronym CAD.

containing pressure on the external current account deficit, with Treasurer Paul Keating saying in 1989 that “we must never lose sight of the fact that the current account deficit and our external debt are unsustainably high.”³

The debate subsequently focused on the causes behind external deficits. Current account deficits owing to persistent fiscal deficits—the so-called “twin deficits”—are undesirable because they reflect an unsustainable fiscal policy. But current account deficits driven by private sector savings and investment should not be an issue, because these deficits reflect the optimal decisions of consenting adults in Australia, and also of the foreign savers who provide the required financing.⁴



4. **The academic literature provides foundations for the consenting adults view, but quantifying the optimal level of the current account deficit is a difficult exercise.** Sachs (1981) formalized the idea that a current account deficit can be optimal because it reflects unusually good investment opportunities or a country smoothing consumption in response to a negative shock. Sheffrin and Woo (1992) quantified the optimal level of the current account deficit. Their methodology was subsequently applied to numerous countries (Obstfeld and Rogoff, 1995 and 1996 survey the early literature; Cashin and McDermott, 1998, and Bergin and Sheffrin, 2000 apply the methodology to Australia). The estimated optimal current account benchmarks tend to be very imprecise, however, and they are therefore not a reliable basis for assessing whether a country’s current account deficit is excessive (Mercereau and Miniane, 2004). Consequently, this chapter analyzes Australia’s current account deficit from several other perspectives.

B. Current Account Deficits and the Saving-Investment Balance

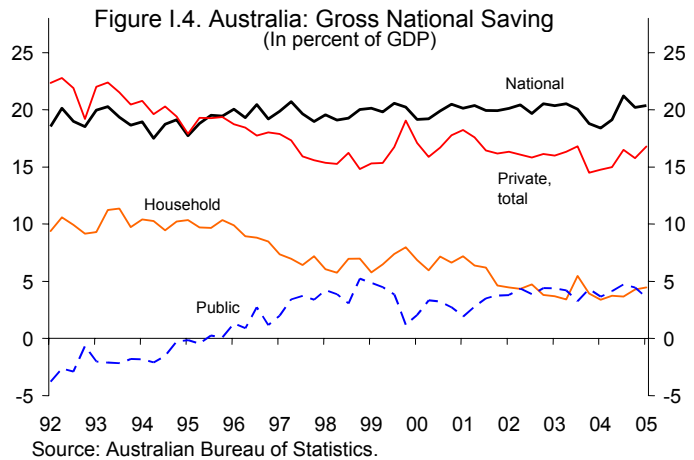
5. **The current account equals saving minus investment.** This accounting identity implies that a current account deficit will reflect low savings or high investment or a combination of the two. Low savings might suggest that a country’s current level of consumption is excessive and that an adjustment might be needed in the future. In this case, a current account deficit would signal an unsustainable situation. High investment, however, implies that the country’s output is more likely to grow strongly in the future so long as firms’ investment is not inefficient. In this case, a current account deficit would reflect good investment opportunities and signal a healthy economic outlook.

³ Quoted in Horne (2001).

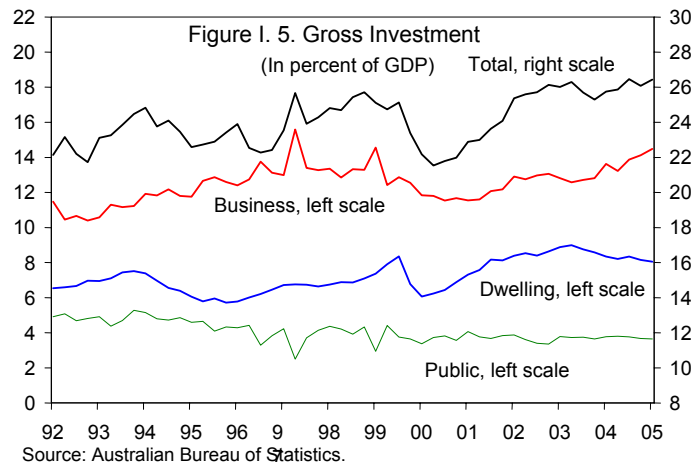
⁴ Makin (1988), Pitchford (1989), and Corden (1991) have been influential Australian proponents of the consenting adults view of current account deficits, which is also sometimes referred to as the “Lawson Doctrine,” after U.K. Chancellor of the Exchequer Nigel Lawson.

6. Australia's current account deficits reflect high private investment:

- Australian savings are not unusually low.** Australia's national saving has remained stable over the past 15 years at about 20 percent of GDP. In recent years, increased public and corporate saving have compensated for falling household saving.⁵ Moreover, Australia's national saving is close to advanced nations' average (Figure I.6).



- Australian investment is high.** Fixed investment has increased substantially in recent years, from about 22 percent of GDP in 2000 to 26 percent of GDP in 2006. Private sector investment accounts for all the increase, as public sector investment remained flat. While dwelling investment rose sharply in the early 2000s, it has since declined as a share of GDP. Rising business investment more than made up for this fall, and total private sector investment kept increasing. Australia's investment is also high by international standards, owing to strong private investment rather than public investment (Figure I.6).⁶ The high level of business investment partially reflects Australia's specialization in capital-intensive sectors, such as mining. There is also no sign that business investment is inefficiently high: corporate profitability is solid, returns on investment are healthy, and productivity has been rising strongly.

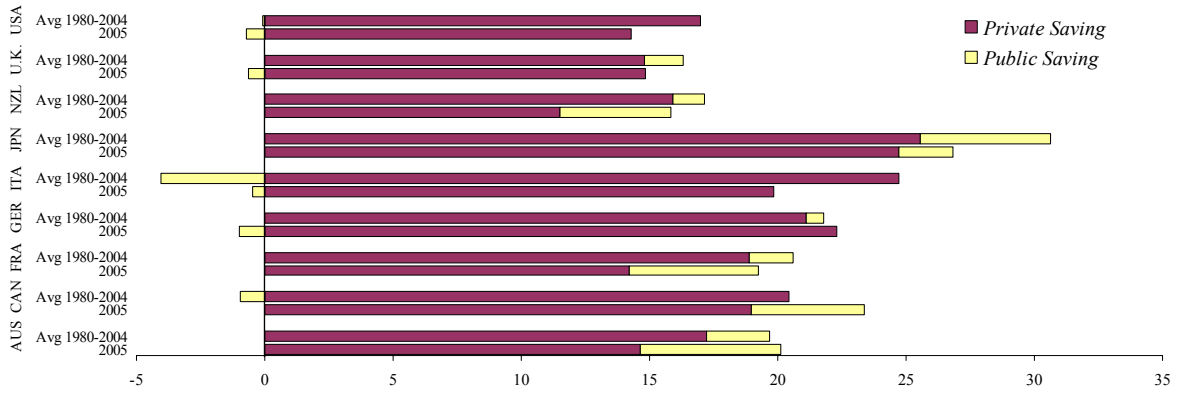


⁵ The net saving rate of Australian households fell in 2002-04 in conjunction with a boom in house prices, and rose only modestly in 2005. An alternative measure of household saving would be changes in net financial wealth, which includes changes in the valuation of financial assets. Based on this broader measure, the household saving rate in Australia has not declined recently and is not out of line with other developed countries (the Reserve Bank of Australia's May 2006 *Statement on Monetary Policy* further discusses this point).

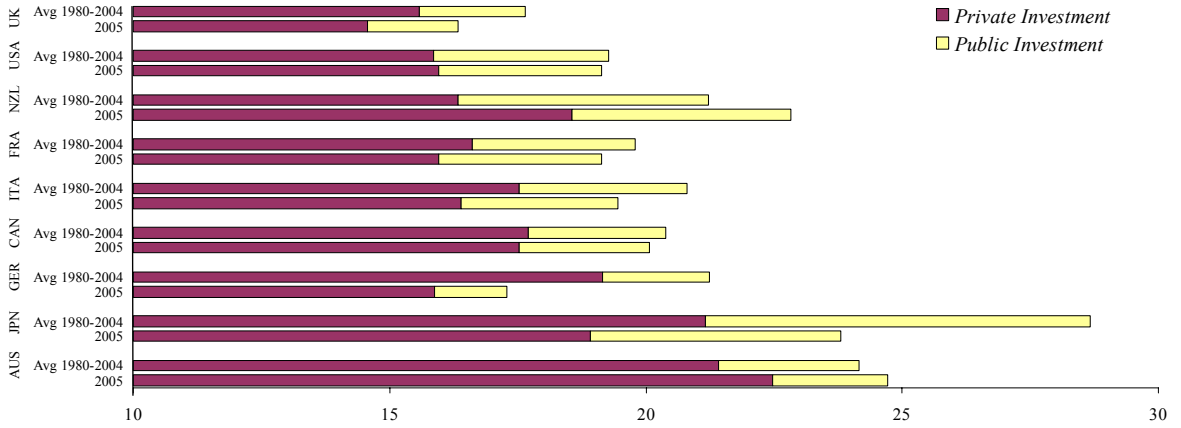
⁶ Studies surveyed by the Productivity Commission (2004) suggest that housing investors in Australia receive more generous tax treatment than investors in many other nations because they can make larger deductions of negative net rental earnings from taxable income and the treatment of depreciation is relatively favorable. While the tax regime may have a positive impact on dwelling investment in Australia, it remains that private non-residential investment is higher in Australia than in many developed economies.

Figure I.6. International Comparisons of Saving and Investment
(In percent of GDP)

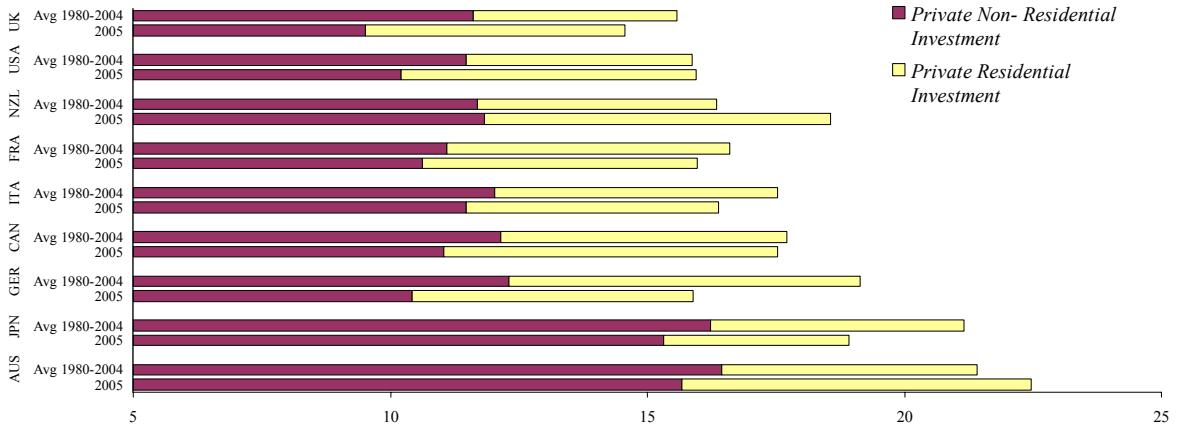
National Saving



Fixed Investment



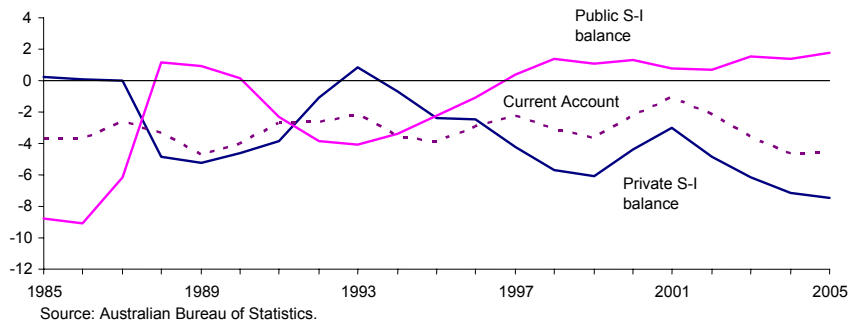
Private Investment



Source: IMF, World Economic Outlook and OECD Database.

7. **In conclusion, the sustained current account deficit reflects private sector choices rather than public sector developments.** Moreover, high levels of investment are the main cause of Australia's historical and recent current account deficits. The investment

Figure I.7. Saving Minus Investment, and Current Account: 1985-2005.
(In percent of GDP)



nature of the external deficit is a source of comfort for Australia, especially as indicators such as corporate profitability suggest that investments are generating solid returns.

C. Can Past Levels of Current Account Deficits be Sustained?

8. Another way to analyze external deficits is to assess whether past levels of deficits can be sustained. In other words, do accumulated deficits put the country's net foreign liabilities on an explosive path, or at least a path that would lead investors to doubt the capacity of Australia to service these liabilities?

9. **Net foreign liability and external debt service ratios will eventually stabilize if the external current account deficit is stable as a share of GDP.** Gruen and Sayegh (2005) note that if the current account is constant as a share of GDP and nominal GDP growth is constant as well, then net foreign liabilities will converge to a constant share of GDP. More precisely, in the steady state net foreign liabilities will be:

$$nfl = cad/g, \quad (1)$$

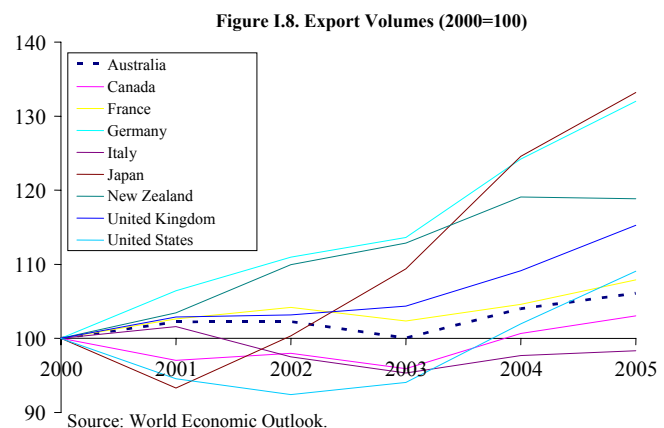
where g is nominal GDP growth and other variables are expressed as a share of GDP. For example, if the current account deficit remains stable at its historical average of 4.5 percent of GDP and nominal GDP growth stays at 6 percent, net foreign liabilities would eventually stabilize at 75 percent of GDP, or 25 percent above current levels. Net external interest payments were 9.1 percent of exports of goods and services in 2005. If the structure of the international investment position and rates of return are unchanged, this debt service ratio would rise in parallel with the increase in overall net foreign liabilities, to 11.4 percent of exports when net foreign liabilities reached 75 percent of GDP. Such a debt service ratio does not appear problematic, indeed, it would be below the levels observed during 1985 to 1996, largely owing to the decline in Australia's nominal interest rates.

10. **The implied steady-state level of net foreign liabilities and debt service ratios are, of course, sensitive to assumptions.** For example, if nominal GDP growth is 5 percent instead of 6, then net foreign liabilities would stabilize at 90 percent of GDP and net external

interest payments at 13.5 percent of exports (assuming that the stable current account deficit is still 4.5 percent of GDP). Alternatively, if the current account deficit remains at its 2005 level (6 percent of GDP) and nominal GDP growth is 5 percent, net foreign liabilities would stabilize at 120 percent of GDP and net external interest payments at 18 percent of exports. Moreover, it is important to keep in mind that net foreign liabilities are bounded, as a country cannot sell more than its entire future production of tradable goods. While it is difficult to quantify this upper-bound, the country's balance sheets suggest that Australia's debt levels are still far from it (see section E).

11. **Strong GDP growth and a stable current account deficit are key to external sustainability**, as equation (1) shows. The risks to external sustainability are therefore:

- **Lower than expected nominal GDP growth.** Strong real GDP growth is essential to external sustainability. Continued ambitious structural reforms would not only raise Australia's living standards and help address the challenge of an ageing population, it would also reduce the risk of a sharp adjustment in the country's external position. Moreover, continued success in maintaining inflation within the RBA's target range of 2-3 percent ensures that deflation will not contribute to making the external position unsustainable.
- **A deteriorating current account.** Export growth in the past 5 years has averaged only 1¼ percent, well below the average of 7½ percent in the prior 15 years, although the severe drought in 2002-03 was a contributing factor. The current account deficit could further deteriorate if exports keep disappointing, although a widening trade deficit would eventually result in the currency depreciating, which would help improve the trade balance over time. The current account could also deteriorate if international interest rates rose or if Australia's risk premium increased, perhaps as investors become wary of external deficits. However, by borrowing in domestic currency, or through use of hedging instruments, Australia effectively pays domestic interest rates on most of the external debt. As a result, the exchange rate transmits much of the impact of adjustments in international interest rates and risk premia, tending to improve the trade balance rather than resulting in a deterioration in the income balance.⁷



⁷ The staff report's external sustainability annex also quantifies the impact of various shocks on the external position and finds that external sustainability is robust to shocks within the range of historical experience.

12. **In conclusion, past levels of current account deficits seem sustainable.** Achieving strong growth, especially in exports, will ensure sustainability and the continued confidence of foreign investors.

D. Are there Risks Associated with Large Current Account Deficits?

13. **Cross-country studies shed light on whether current account deficits carry macroeconomic risks.** Current account deficits have been used as an early warning indicator for currency crises in emerging markets (see, for example, Kaminsky and Reinhart, 1999). Other studies, following Milesi-Ferretti and Razin (1998), assess whether sharp reversals follow large current account deficits and, if so, what factors make such reversals more likely and more costly. Milesi-Ferretti and Razin (1998) use two criteria to define a current account reversal: (i) the average reduction in a current account deficit is at least 3 percent of GDP in the three years after the reversals compared with the three years before; and (ii) the maximum deficit after the reversal must be no larger than the minimum deficit in the three years preceding the reversal (this second criterion is to ensure that the reversal is permanent rather than temporary). Other studies use similar criteria to define a current account reversal. This section summarizes the broad results of this literature, and then discusses their implications and their limitations for Australia.

Box I.1. Cross-Country Studies Investigating Current Account Reversals.

Milesi-Ferretti and Razin (1998): 86 low- and middle- income countries, 1971–92.

Edwards (2004, 2005): 157 countries, 1970–2001.

Freund (2005): 25 industrial economies, 1980–97.

Freund and Warnock (2005): OECD countries, 1980–2003.

Debelle and Galati (2005): 21 industrial countries, 1974–2003.

Croke *et al.* (2005): industrial countries.

Adalet and Eichengreen (2005): industrial countries, 1880–1998.

14. **Some factors tend to increase the probability of a current account reversal.** Table I.1 summarizes the results found by the empirical studies listed in Box I.1. Larger current account deficits and higher levels of external debt seem to increase the probability of a reversal. Higher deficits or debt levels are seen as leaving a country more vulnerable to external shocks, although Debelle and Galati (2005) find that larger current account deficits do not increase the risk of reversal. Greater openness to trade seems to increase the probability of a reversal, although more open economies might be more vulnerable to external shocks. Higher reserves seem to reduce the probability of a reversal, possibly because higher reserves might reduce the risk of financing withdrawals, especially in emerging markets. Higher international interest rates, which might redirect capital flows away from indebted countries and increase their debt service, are associated with a higher probability of reversals. Wealthier economies are not less subject to reversals, and rates of economic growth, both domestic and worldwide, do not have a consistent impact on the probability of reversal.

Table I.1. Determinants of Current Account Reversals

Variables ^[1]	Low-middle income	All	High income			Consensus	Australia: Impact on risk
	Milesi-Ferretti Razin	Edwards	Freund	Debelle Galati	Adalet Eichengreen		
CA deficit	+	+	+	ns	+	+	?
Trade openness	+				+	+	?
Reserves	-	-				-	?
GDP per capita	+	ns			-	?	?
Fiscal deficit	-		ns		+	?	?
OECD growth	+			-	+	?	?
U.S. interest rates	+			+		+	?
External debt/GDP		+				+	?
Appreciated REER			ns	ns		?	?
GDP growth			+	ns	-	?	?
Sudden outflow of capital		+			+		?

« + » means « a high level of the variable significantly increases the probability of a reversal ».

« - » means « a high level of the variable significantly decreases the probability of a reversal ».

« ns » means « not significant ».

¹ Only variables which appear in more than one study or which have a non-ambiguous impact are included in the table.

15. **When current account reversals do occur, they tend to be associated with reduced GDP growth** (Table I.2). Croke *et al.* (2005), for example, find that GDP growth falls on average 3 percentage points during current account reversals before bottoming out, although interestingly, these shortfalls were not associated with significant and sustained depreciations of real exchange rates, increases in real interest rates, or declines in real stock prices. This finding is consistent with the argument of Debelle and Galati (2005) that current account reversals in industrial countries mostly reflect domestic economic cycles rather than shortfalls in net capital inflows driven by a loss in external confidence. Larger current account deficits and a more appreciated exchange rate increase the cost of reversal, while higher trade openness reduces it. Larger current account deficits might increase the needed adjustment. A more appreciated real effective exchange rate might signal greater misalignment with economic fundamentals. More open economies can rely more on trade rather than a domestic demand contraction to adjust. Surprisingly, a healthy fiscal position does not seem to reduce the cost of a reversal. More open capital accounts, which leave the country more subject to rapid capital outflows; higher GDP growth before the adjustment, which could reflect overheating; and higher international interest rates, which increase debt service, do not seem to increase the cost of reversal either.

Table I.2. Determinants of the Growth Impact of a Reversal

Type of Economies Variables ^{1/1}	Low-middle income	All	High income				Australia: Impact on potential cost
	Milesi-Ferretti and Razin	Edwards	Freund	Debelle and Galati	Adalet and Eichengreen	Croke <i>et al.</i>	
CA deficit ²			+	ns	+	+	↑
Trade openness	-	-			+		↑
Fiscal deficit					+	ns	↓(?)
U.S. interest rates				+	ns		?
Appreciated REER	+				+		↑(?)
GDP growth				ns		+	?
Capital controls		ns			-		?
Flexible exchange rate		-			ns		?

« + » means « a high level of the variable significantly increases the cost of a reversal ».

« - » means « a high level of the variable significantly decreases the cost of a reversal ».

« ns » means « not significant ».

¹ Only variables which appear in more than one study or which have a nonambiguous impact are included in the table.

² Trade deficit in Adalet and Eichengreen (2005)

16. The literature suggests that there are risks associated with Australia's large current account deficits. Several factors increasing the probability of a reversal are at play in Australia: its current account deficit is high, despite exceptionally high terms of trade; the country has a relatively large external debt; and international interest rates, though still relatively low, are rising. Moreover, some factors might increase the cost of a reversal if such a reversal happened: Australia's current account deficit is high; the economy is relatively closed,⁸ and the real effective exchange rate is significantly above its historical average, although it is not clear that the exchange rate is overvalued given the underlying economic fundamentals. Low reserves should not matter for Australia, however, since its currency has been floating for many years.

17. Several factors substantially mitigate the risks, however. The literature suggests that relatively closed economies, like Australia, are less subject to current account reversals. Freund and Warnock (2005) also find that when current account adjustments do take place, investment-driven external deficits result in milder adjustments than those that are consumption-driven. More importantly, the literature does not fully account for some important strengths of the Australian economy. For example, one would expect Australia's healthy fiscal position and flexible exchange rate to help cushion the impact of a potential reversal on GDP growth, despite the fact that the empirical literature does not offer strong evidence supporting this. Extensive foreign exchange hedging and the robust financial system should also help mitigate the impact of adverse shocks. Overall, these strengths, together with the sound medium-term frameworks for monetary and fiscal policies, suggest that the Australian economy would adjust in a timely manner if external conditions turned less favorable.

⁸ Australia has low tariffs and few trade barriers. However, it ranks 28th out of 30 OECD countries in terms of openness, defined as exports plus imports relative to GDP. In addition, Australia is the 20th least open economy of the 136 countries and territories for which the Penn World Tables have data (the Reserve Bank of Australia further discusses this issue in its March 2005 Bulletin). Guttman and Richards (2004) find that Australia's distance to the rest of the world and to a lesser extent, its large geographic size explain the country's low openness.

E. Are there Risks Associated with Large Stocks of Foreign Liabilities?

18. **Australia's external liabilities are predominantly intermediated through the banking system.** The stock of foreign liabilities has increased steadily, both in nominal terms and as a share of GDP, and the composition of liabilities has shifted toward more debt (Table I.3).⁹ Non-resident claims on the public sector have declined in recent years as the total public debt has fallen, so the private sector now accounts for about 90 percent of gross external debt, with financial corporations owing four-fifths of private external debt.

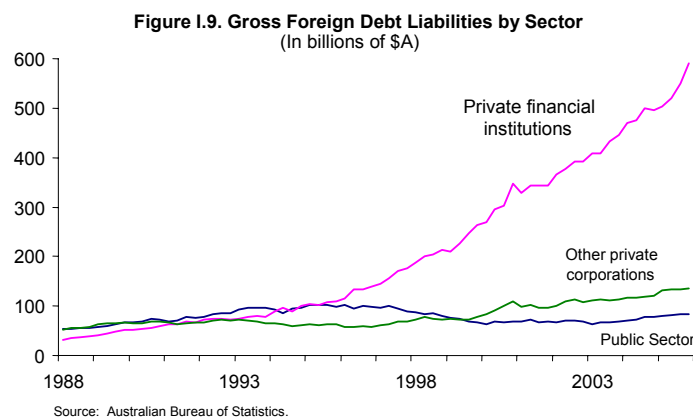


Table I.3. Australia: External Liability and Reserve Indicators
(In percent of GDP or otherwise noted)

	End-December							
	1998	1999	2000	2001	2002	2003	2004	2005
Net external liabilities	53.6	53.8	53.0	48.3	53.2	55.6	58.3	60.1
Net external equity liabilities	13.9	14.5	8.4	4.4	6.6	9.9	9.8	9.3
Foreign equity investment in Australia	45.4	50.8	47.8	51.4	47.0	50.2	56.2	51.7
Australian equity investment abroad	-31.5	-36.3	-39.4	-46.9	-40.4	-40.4	-46.5	-42.4
Net external debt	39.7	39.3	44.6	43.8	46.6	45.7	48.5	50.8
Net public debt	7.2	2.9	2.2	1.5	2.0	0.9	1.6	0.6
Net private debt	32.5	36.4	42.4	42.3	44.6	44.8	46.9	50.2
Gross external debt	61.2	62.4	70.5	71.5	75.6	75.5	80.6	82.6
Gross external lending	-21.5	-23.1	-25.8	-27.6	-29.0	-29.8	-32.1	-31.8
Short-term net external debt (residual maturity basis)	17.0	16.5	21.5	23.0	22.3	17.8	18.4	20.2
Short-term gross external debt	29.8	32.4	39.0	38.9	39.7	36.0	37.6	38.0
Short-term gross external lending	-12.8	-15.8	-17.5	-15.8	-17.4	-18.1	-19.2	-17.8
<i>Memorandum items:</i>								
Net income payments to exports (percent)	15.7	15.7	12.9	12.2	13.7	16.1	18.6	20.3
of which: Net interest payment to exports (percent)	9.0	10.4	10.0	9.0	8.5	8.1	9.4	9.1
Gross official reserves (in \$A billion)	25.0	33.6	34.0	36.5	38.1	44.3	47.4	59.0
RBA outstanding forward contracts (in \$A billion)	10.1	22.6	24.9	29.5	25.0	26.4	22.4	30.4
Net official reserves (in \$A billion)	14.9	10.9	9.1	7.0	13.1	17.9	25.0	28.6
Gross official reserves (in months of imports)	2.3	2.7	2.7	2.7	2.8	3.0	2.9	3.4
Gross official reserves to short-term foreign currency denominated debt (percent)	19.5	23.0	18.9	19.4	18.6	21.9	21.5	24.8

Sources: Australian Bureau of Statistics, Reserve Bank of Australia, and Fund staff estimates.

19. **The terms on which foreign investors are willing to continue to provide finance in the face of shocks determine whether these external liabilities are a source of vulnerability.** International financial markets currently view Australian banks favorably,

⁹ Annex I in 2005 *Staff Report* (IMF Country Report No. 05/331) discusses Australia's external position in greater detail.

with risk premia on banks' bonds and credit default swap premia at about 10 basis points. However, in the event of shocks investors may reevaluate the risks they face, and require higher expected returns, with a potentially large impact on interest rates and the exchange rate. The sensitivity of risk premia to shocks will depend on the underlying financial robustness of both the banks and their borrowers.

20. **Private sector balance sheets are sound, although households remain exposed to a potential overvaluation of housing.**¹⁰

- **The non-financial corporate sector is in a strong financial position.** Businesses have enjoyed favorable conditions in recent years, notably strong commodity prices. Corporate profits increased 10 percent over 2005 and have reached their highest level as a share of GDP in over 30 years. While debt as a multiple of profits is high by historical standards, it remains below previous peaks. The debt-servicing ratio also remains around historical lows.
- **Households' balance sheets also look sound.** Household net worth was 639 percent of disposable income in March 2006, with this ratio up by one-half from its average of 427 percent during the 1990s. Household indebtedness has continued to rise, with debt reaching 152 percent of disposable income in the first quarter and interest payments at 10¾ percent of income, although debt is only one-fifth of household assets and 35 percent of housing assets. Moreover, household debt is concentrated on high income groups who have relatively low debt service burdens and significant financial assets.¹¹ The RBA's March 2006 *Financial Stability Review* finds few signs of household financial distress. Nonetheless, housing is almost 60 percent of total household assets, and house prices rose by over 60 percent in 2001-03. House prices have since been remarkably stable, but house prices remain high by historical standards. A substantial fall in house prices would adversely impact households' balance sheets, especially of those households whose debt burden is significantly higher than the national average, which are most likely to be recent borrowers.
- **The financial sector is healthy**, and stress tests indicate that it is well-placed to absorb shocks, including falls in house prices, as discussed in the Financial System Stability Assessment.

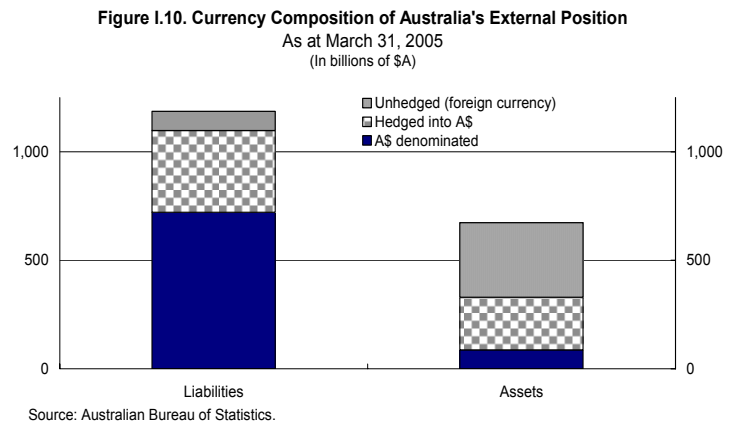
¹⁰ See also the Reserve Bank of Australia's *Financial Stability Review*, March 2006.

¹¹ Reserve Bank of Australia, *Financial Stability Review*, March 2005.

21. **Vulnerabilities are also contained by private sector management of the foreign exchange and rollover risks associated with external debt:**

- **Foreign currency risks are limited by extensive hedging, although associated counterparty risks remain.**

A 2005 survey by the Australian Bureau of Statistics showed that foreign currency assets of Australian entities exceeded foreign currency liabilities, with a net long foreign currency position of \$218 billion, or 26 percent of GDP.¹² In particular, private corporations appeared to have relatively minimal direct exposure to exchange risk: a significant portion of their overseas borrowing was hedged naturally. While banks have borrowed substantially in foreign currencies, they have made extensive use of derivatives to hedge the exposure. Around 77 percent of these derivative contracts are taken with non-residents. While the Australian dollar is the 6th most actively traded currency according to the BIS, there may still be concerns about counterparty risk on forwards and swaps becoming concentrated owing to a limited number of large global participants. Most of the remainder of the derivative positions were swap transactions with the Reserve Bank, which has undertaken such transactions for domestic liquidity management purposes. One indication of the effectiveness of the banks' hedging is the limited variation in the sector's earnings in the face of the sharp movements in the Australia dollar in recent years.



- **Australia's external position entails roll-over risks, but there are several mitigating factors.** Just under one-half of Australia's external debt has a residual maturity of less than 1 year. At some point, Australian financial institutions may face unfavorable circumstances when they need to roll over their external financing, potentially reflecting shocks to financial markets in other countries or changes in investor perceptions. Because Australia's financial markets are well-developed, its foreign exchange market is deep, and the banks have AA- credit ratings (Australia has a AAA- sovereign rating), in most circumstances, a relatively modest increase in risk premia would be sufficient to attract alternative investors in the same market, or to raise funds in other markets. Indeed, the banks have aimed to diversify their international funding sources and have made offerings in a large variety of instruments. However, the risk of more difficult circumstances cannot be ruled out. In such a case, banks would need to fall back on their liquidity buffers, which are

¹² Reserve Bank of Australia, 2005, *Australia's Foreign Currency Exposure and Hedging Practices*, RBA Bulletin, December.

subject to regulation by APRA. They could also turn to funding sources that may be less sensitive to shocks, such as mortgage securitization, because banks have maintained the infrastructure needed to make such issues even though they have securitized only a limited fraction of their portfolios.

22. **Overall, strong financial supervision is needed to continue to contain the vulnerabilities associated with substantial private sector external debt.** Appropriate supervision of credit risks underpins the financial health not only of the banks, but also of corporations and households, thereby underpinning foreign investors' confidence in the capacity of the private sector to service external debt. Moreover, regulation of foreign exchange and liquidity risks is important to limit the potential for shocks, whether foreign or domestic, to become a significant threat to the solvency or liquidity of banks, which would likely have a significant impact on the confidence of foreign investors.

F. Should Australia's Consenting Adults be Trusted?

23. **Yes, Australia's large external deficits appear sustainable. There are, however, risks associated with the resulting external debt that need continued careful management.** These deficits, which largely reflect high investment rather than low saving, should be sustainable as long as the Australian economy, especially its exports, grow strongly. The associated accumulation of foreign liabilities nonetheless leaves the country exposed to shocks, but these risks appear to be well-managed, especially thanks to extensive hedging of foreign-currency-denominated liabilities. The sound macroeconomic framework and sustained implementation of structural reforms also reduce the risks by promoting macroeconomic stability and boosting growth. Looking forward, financial supervision must remain vigilant and ensure that financial institutions continue to manage risks in an appropriate manner.

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II. FISCAL POLICY AND THE TERMS OF TRADE BOOM¹

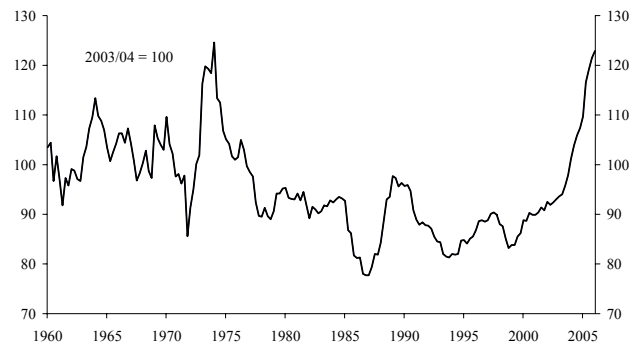
1. **How should fiscal policy be managed in the context of Australia's booming terms of trade?** This chapter looks at the latest developments in Australia's terms of trade and at their effect on fiscal policy. First we summarize recent developments in Australia's terms of trade and alternative views on the outlook for export commodity prices. Then we discuss the optimal response of fiscal policy to changes in commodity prices, drawing on the literature for oil-exporting countries. Finally, we estimate the revenue impact of commodity prices, and make projections of the general government fiscal balance under different scenarios for commodity prices. The chapter finds that the high commodity prices of recent years were not the main driving force behind the strong fiscal performance, and that, even allowing for downside risks to commodity prices, fiscal policy remains broadly consistent with the authorities' goal of balancing the budget over the cycle.

A. The Current Boom

2. **Australia is enjoying its most favorable terms of trade in three decades (Figure II.1).** Over the past three years, Australia's terms of trade have increased by 31 percent, to reach levels last observed in the early 1970s.

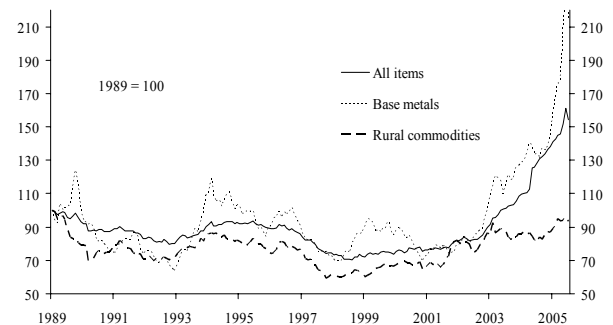
3. **The current terms of trade boom is primarily driven by export prices, in particular by prices of mining products.** Between end-2002 and June 2006, the overall index of Australia's export commodity prices in U.S. dollars increased by 88 percent, while the base metals component of the index increased by 171 percent (Figure II.2). This had a major impact on the terms of trade because commodities account for over half of goods exports. The terms of trade were also affected by a decline in the prices of Australia's imports (mostly manufactured goods, in particular high technology goods), but this effect was relatively small compared with the impact of export commodity prices (Australian Bureau of Statistics, 2005).

Figure II.1. Terms of Trade Index



Source: Australian Bureau of Statistics

Figure II.2. RBA Index of Commodity Prices, US Dollars



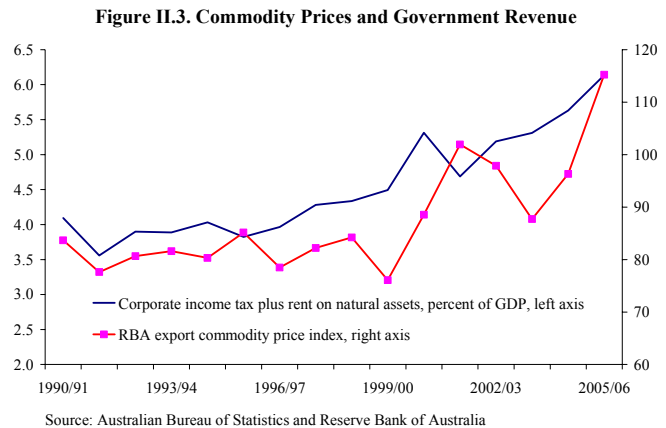
Source: Reserve Bank of Australia

¹ Prepared by Dmitry Rozhkov (ext. 3-9745).

4. **The source of the current terms of trade boom differs from the boom of the early 1970s.** The 1970s boom was also a result of large increases in export commodity prices, but commodity exports were then predominantly agricultural (Gruen, 2006). In the current boom, however, prices of rural export commodities in U.S. dollars increased by only 15 percent since end-2002, and the terms of trade were driven by prices of Australia's mineral exports, in particular iron ore and coal.² This means that the benefits of the current boom are significantly more concentrated within the economy: though the mining sector accounts for about 5 percent of Australia's GDP, its' employment share is only 1 percent (Grant, Hawkins, and Shaw, 2005); moreover, the mining industry is also concentrated geographically, with production located mostly in Queensland and Western Australia.

5. **Another difference between the two booms is their likely impact on domestic demand and resource utilization.** Proceeds from the 1970s boom accrued primarily to Australian farmers, many of whom were credit-constrained during the period (Gruen, 2006). As a result, most of the proceeds from temporarily high commodity prices were spent, rather than saved. By contrast, in the current episode some of the proceeds may not be spent in Australia because they accrue to mining companies with substantial foreign ownership. There may also be a greater tendency to invest these profits, which tends to have a higher import content, lessening pressure on domestic resources.

6. **Rising commodity prices are contributing to the strong fiscal position of the Australian government.** Revenue items that depend on proceeds from export commodities such as corporate income tax and rent on natural assets increased by about 1 percentage point of GDP over the past three years, and their increase was roughly parallel with the increase in export commodity prices (Figure II.3). High export commodity prices were not the only factor behind the strength of the fiscal position, since other Australian industries were also performing strongly during the period. However, they were undoubtedly a significant contributing factor.



B. How Long Will the Party Last?

7. **Forecasting commodity markets is difficult, and analysts have widely diverging views of the prospects for commodity prices.** Opinions on the likely path of Australia's export commodity prices in the medium term can be broadly divided into two groups.

² Since 2002, metals account for about 85 percent of the cumulative 65 percent real increase in the IMF non-fuel commodities price index.

8. **The Realists Camp: “Things Will Soon Get Back to Normal.”** This view is based on the fact that Australia’s export commodity prices and the terms of trade generally revert to historical averages. In the words of Australian Treasurer Mr. Costello, “previous booms in the terms of trade have ended badly ... the country believes it can relax economic policy and spend up the proceeds, inflation gets away and the letdown is a hard adjustment.”³ This view forms the basis of the Treasury’s projections in the 2006/07 Budget, which assumes that export commodity prices will stay at their current high level until end-June 2007, and then will decline by about 25 percent in the following two years.

9. **The realist point of view is supported by the past time series behavior of Australia’s terms of trade.** In a comprehensive study, Gillitzer and Kearns (2005) estimate the terms of trade to be a stationary series (possibly around a trend). They estimate the coefficient of the lagged terms of trade to be between 0.65 and 0.70 for the period after 1955. This implies that shocks to the terms of trade are transitory, with half of a shock dissipating within two years. Moreover, Gillitzer and Kearns find that shocks to the terms of trade have become shorter-lived in the second half of the 20th century. A number of studies have found similar results with respect to the time series behavior of oil prices.⁴

10. **The argument of inevitable mean reversion of export commodity prices essentially relies on the supply response of the mining companies, as well as on the cyclical nature of demand.** High prices encourage mining companies to increase investment and production, and this additional supply eventually causes prices to fall. The duration of a boom is thus determined by the length of the lag between new investment and production. Unlike hydrocarbons, overall reserves of base metals are practically unlimited; moreover, metals are not destroyed when processed and used, and can be recycled (Tilton, 2003).

11. **In fact, there is evidence of increased mining investment and production in recent years.** Australian mining companies have invested about A\$ 30 billion over the past three years (Grant, Hawkins, and Shaw, 2005), and overseas producers are also expanding capacity. The Australian Bureau of Agricultural and Resource Economics forecasts that world prices of coking coal and iron ore will begin to fall in 2007 (ABARE, June 2006). In the longer term, commodities futures markets also appear to expect a significant price decline: over the next five years, the futures prices of metals retain only about one half of the increase accumulated since 2002.⁵

³ *Australian Financial Review*, February 13, 2006.

⁴ For example, Barnett and Vivanco (2003), Pindyck (1999), and Akarca and Andrianacos (1998). An exception is Cashin, Liang, and McDermott (2000), who found evidence of strong persistence in oil price shocks in the post-World War II period, with no mean reversion of oil prices.

⁵ In real terms, futures metals prices fall by 46 percent from current levels; within metals, copper futures prices decline the most, by 55 percent in real terms (IMF, *World Economic Outlook*, October 2006).

12. **The Super cycle Camp: “This is a New and Different World.”** An alternative view is that commodity prices are going through a “super cycle” in which the current commodity price boom is likely to last notably longer than its predecessors. The current boom is demand-driven, and a significant share of new demand comes from rapidly growing Asian countries such as China and India. China in particular has emerged as a major consumer of Australia’s export commodities over the past decade (Table II.1). China is expected to account for about 70 percent of the growth in world consumption and production of steel in 2006 and 2007, for which coal and iron ore are the key inputs (ABARE, June 2006). Industrialization of both China and India is far from over, China still lags well behind Korea and Japan in per capita consumption of resources and resource-intensive manufactures such as steel (ABARE, June 2004) —and both countries are expected to continue to grow rapidly in the medium term.⁶ In addition, their populations greatly exceed those of previous industrializing countries such as Japan and Korea. For these reasons, the strong growth in demand for commodities is likely to last longer than in a typical cycle: although the supply curve is shifting to the right, the demand curve is shifting to the right as well, delaying the usual reversion of commodity prices (Blythe, 2006).

Table II.1. Selected Australian Commodity Exports to China

	Three years ended 1994/95	Three years ended 2004/05	Percentage change
<i>Kilotonnes, unless otherwise indicated</i>			
Steel	43.0	852.7	1,883
Aluminium	13.7	64.5	371
Copper			
Refined	1.8	23.7	1,217
Concentrates	31.0	316.3	920
Gold, kilogrammes	0.0	4,503.0	...
Lead			
Refined	0.5	0.4	-20
Concentrates	0.0	97.4	...
Zinc			
Refined	0.3	9.8	3,167
Concentrates	8.8	216.4	2,359
Oil, million litres	236.0	1,606.7	581
Metallurgical coal, million tonnes	0.4	2.5	525
Thermal coal, million tonnes	0.4	2.7	575
Wine, thousand litres	70.0	1,450.0	1,971
Total commodity exports to China (millions of 2005-06 A\$)	2,615	7,762	197

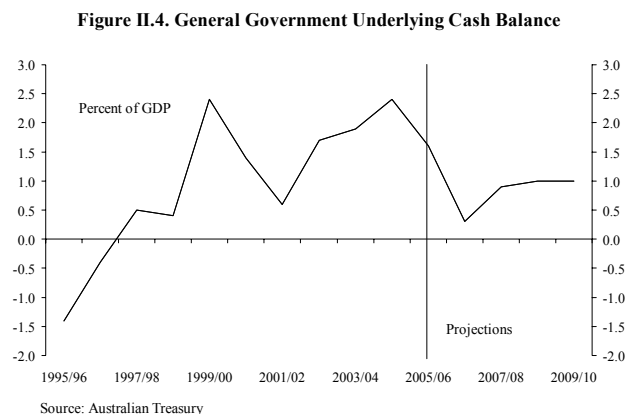
Source: ABARE, *Australian Commodities*, March 2006

⁶ Real growth in 2006-10 is expected to average about 9½ percent in China and about 6½ percent in India (*IMF Country Reports* Nos. 05/411 and 06/55).

13. **The possibility of a more extended commodity price cycle is reinforced by the potential for a slower supply response by the mining industry.** Many analysts have noted that, although market structures are competitive and there is currently no formal attempt by producers to control prices, the mining industry has consolidated into fewer but larger companies. Therefore, mining companies may be less aggressive in their new investment and production to avoid the overcapacity that developed in past cycles.

C. The Fiscal Dilemma: To Spend or Not to Spend?

14. **Australia's fiscal position is robust.** The consolidated general government (including commonwealth, state, and local governments) has recorded fiscal surpluses in each of the past 9 years (Figure II.4). At the federal level, net public debt was eliminated in April 2006. Hence, there is no pressing need to use additional revenue for fiscal consolidation.



15. **The optimal response of fiscal policy to the commodity price boom depends on which of the two views outlined in Section B is correct.** A standard theoretical approach based on Friedman's permanent income hypothesis would suggest that the government, just like any consumer, should limit its consumption to its permanent income, or alternatively, to the implicit return on permanent government wealth. To be useful in practice, however, this approach requires an ability to distinguish between commodity price shocks that are permanent (or more lasting) and transitory price shocks, which is not straightforward.

16. **However, the literature suggests a few guiding principles for fiscal policy that can be applied without making an explicit assumption about the nature of a price shock.** These principles were formulated for oil-producing countries (Barnett and Ossowski, 2003), but can be applied in the case of other commodity prices. The key principles are:

- The balance adjusted for commodity prices should feature prominently in the formulation of fiscal policy.
- The adjusted balance should be changed only gradually, as large swings in fiscal policy (as measured by the adjusted balance) are destabilizing to aggregate demand.
- The government should accumulate net financial assets during a period of high commodity prices. In the case of oil producing countries, it is often recommended that oil receipts be regarded as financing (a below the line addition to the cash balance) rather than revenue, because oil is an asset that can be depleted.

17. **Some countries have adopted fiscal rules to deal with the revenue from natural resources, although their experience may not be directly applicable to Australia.** In the Russian Federation, revenues from the mineral extraction tax and the export custom duty on oil in excess of the reference oil price are earmarked for the Oil Stabilization Fund.⁷ These resources may be used to finance the federal budget deficit when the oil price is below the reference price, and under some circumstances for repaying foreign debt. Chile, a major copper producer, has successfully implemented a fiscal rule under which the government saves all the transfers from the state copper company above an estimated long-term reference copper price. Other central government revenue is smoothed over the business cycle, so that the cyclically-adjusted central government surplus is 1 percent of GDP. In Australia, however, there is no single commodity that a fiscal rule can be based on, and the mining companies are not owned by the state.

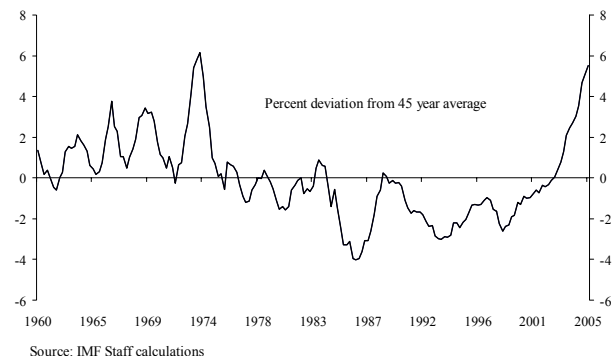
18. **In Australia, a sound medium-term framework for fiscal policy consistent with the above guidelines is already in place.** The medium-term fiscal strategy that has formed the basis for government's fiscal management since the mid-1990s has the primary objective of maintaining budget balance on average over the economic cycle. The supplementary objectives include: (i) maintaining budget surpluses when growth prospects are sound; (ii) not increasing the overall tax burden from 1996-97 levels; and (iii) improving the government's net worth over the medium to long term (Gruen and Sayegh, 2005).

19. **The optimal fiscal strategy in light of the current commodity price boom would be simply to follow the medium-term fiscal strategy with respect to the adjusted balance.** The fiscal balance adjusted for the commodity price effect should therefore be relatively stable, and balanced on average over the cycle. An increase in the fiscal balance owing to abnormally high commodity prices can be used to accumulate net financial assets, via, for example, the recently established Future Fund. To make this strategy operational, it is necessary to estimate the impact of commodity prices on government revenue.

D. Revenue Impact of Commodity Prices

20. **A “back of the envelope” estimate of the terms of trade impact on revenues can be obtained by looking at the structure of the Australian economy.** With exports accounting for about 20 percent of GDP, each 10 percent increase in the terms of trade can be expected to add about 2 percent to nominal GDP (Edey, 2006). The increase of the terms of trade in the past three years would therefore have increased

Figure II.5. Terms of Trade Effect on Nominal GDP



⁷ The fund was introduced in January 2004 with a reference price of US\$ 20 per barrel, which was later raised to US\$ 27 per barrel (*IMF Country Report* No. 05/377).

nominal GDP by about 6 percent (Figure II.5). Given that the effective corporate tax rate (the ratio of corporate income tax revenue to gross operating surplus) has averaged about 20 percent over the recent period, and assuming that most of the terms of trade gain is reflected in higher corporate profits, the terms of trade would have added about 1 percent of GDP to government revenue in 2005 compared with 2002.

21. **To get a better understanding of the effect of commodity prices on government revenue, a more analytical approach can be used.** As the first step, we estimate the impact of commodity prices on corporate profits. This can be done by estimating a regression equation with total Gross Operating Surplus (GOS) of Australian corporations in percent of GDP on the left hand side and the export commodity price index as one of the explanatory variables together with the output gap and lagged values to capture cyclical and dynamic aspects of the relationship between profits and commodity prices:

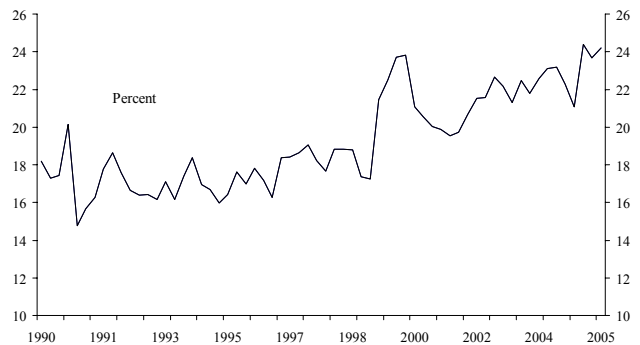
$$\frac{GOS_t}{GDP_t} = \alpha + \beta \cdot t + \gamma \cdot \frac{GOS_{t-1}}{GDP_{t-1}} + \delta \cdot OutputGap_t + \delta_1 \cdot OutputGap_{t-1} + \lambda \cdot P_t + \lambda_1 \cdot P_{t-1} + u_t$$

Where t is a time trend, the output gap is the percentage deviation of real GDP from its potential level (estimated using the Hodrick-Prescott filter), and P_t is the RBA index of export commodity prices in Australian dollars, scaled by the GDP deflator. Using the estimated coefficients from this equation, we then estimate the impact of commodity prices on corporate profits in each period as the difference between the fitted value of GOS with actual commodity prices and the fitted value of GOS with commodity prices fixed at their average historical level.⁸

22. **The regression results are presented in Table II.2.** The coefficients of the current and lagged export commodity prices are statistically significant. The results are robust to the period of observation, and to various regression specifications (for example, using logs of variables instead of their levels) or alternative lag distributions.

23. **The second step is derive the impact of commodity prices on government revenue.** This is done by multiplying the estimated impact on corporate profits by the effective corporate tax rate, which is the ratio of corporate tax payments to the GOS (Figure II.6).

Figure II.6. Effective Corporate Tax Rate



⁸ Unlike oil, Australia's export commodities will take a very long time to deplete. Therefore, we do not treat all revenue from mining as financing (as often recommended in the case of oil), and define the impact of commodity prices as the effect of prices deviating from their historical average.

Table II.2. Regression Results

Dependent variable: Ratio of Gross Operating Surplus (GOS) of Corporations to GDP

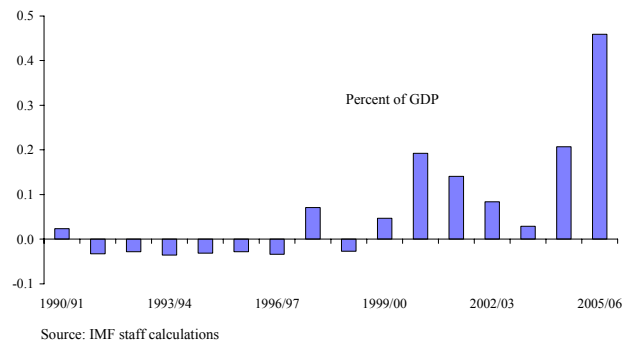
Time Period: 1988:Q1 to 2005:Q4

Explanatory variable	Regression coefficient (Std. errors in parentheses)
Constant	3.174*** (1.165)
Time	0.012*** (0.004)
GOS _{t-1} /GDP _{t-1}	0.748*** (0.085)
Output Gap	0.266** (0.092)
Output Gap _{t-1}	-0.254** (0.106)
Export Commodity Price	0.033** (0.014)
Export Commodity Price _{t-1}	-0.030** (0.015)
Number of observations	71
Adjusted R-squared	0.86
Breusch-Godfrey LM test for autocorrelation	1.15

** denotes significance at 5 percent level, *** at 1 percent level.

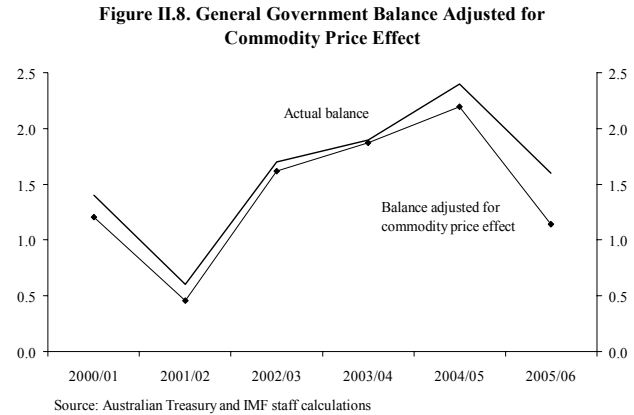
24. **The estimated revenue impact of export commodity prices is shown in Figure II.7.** The estimates suggest that strong export commodity prices added ½ percent of GDP to government revenue in 2005/06. This estimate is smaller than the “back of the envelope” calculation presented earlier, but it is consistent with Treasury’s estimate of the boost to company tax receipts from higher commodity prices.⁹

Figure II.7. Estimated Impact of High Export Commodity Prices on General Government Revenue



⁹ Treasury’s estimate of the effect of higher commodity prices on company tax receipts is less than A\$16 billion over the next four fiscal years (Australian Treasurer Press Release No. 051, June 1 2006, <http://www.treasurer.gov.au/tsr/content/pressreleases/2006/051.asp>).

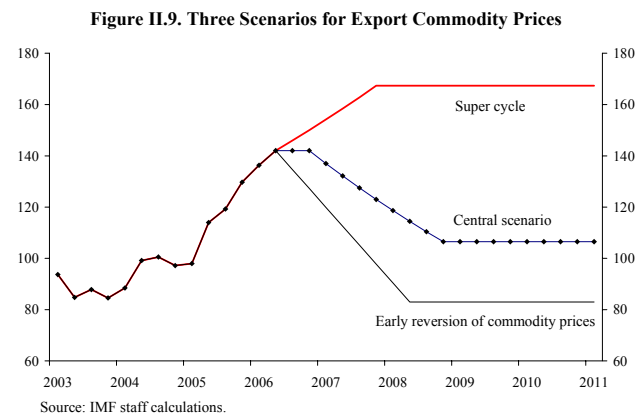
25. **The estimated impact of commodity prices on revenue can be used to calculate the general government balance adjusted for commodity price developments (Figure II.8).** The results show that increases in export commodity prices were clearly not the main driving force behind the strong fiscal performance of the general government in recent years. In particular, even after the adjustment for commodity prices, the general government balance remains in surplus in each of the past 9 years. However, the impact of commodity prices has been noticeably larger in the past two years, resulting in a larger difference between adjusted and unadjusted balances: in 2005/06, the adjusted balance was 1.1 percent of GDP, compared with 1.6 percent for the unadjusted balance.



26. **Other methods of estimating the revenue impact of commodity prices were tried, but the results were not significantly different.** An alternative, for example, is to estimate the system of two equations, the first of which would measure the effect of export commodity prices on the GDP in the mining sector, and the second would relate the GDP in the mining sector to government revenue. The results obtained from this method were not significantly different from those described above. However, estimating the regression with budget revenue on the left hand side is subject to econometric problems, because GDP in the mining sector is highly correlated with other components of GDP.

E. A Look into the Future

27. **The implications for the government budget balance of alternative scenarios for export commodity prices can be estimated using the same method.** We consider three scenarios for export commodity prices (Figure II.9). In the central scenario, export commodity prices are assumed to remain constant in the second half of 2006, fall by 25 percent over the following two years, and then remain constant at a level that is

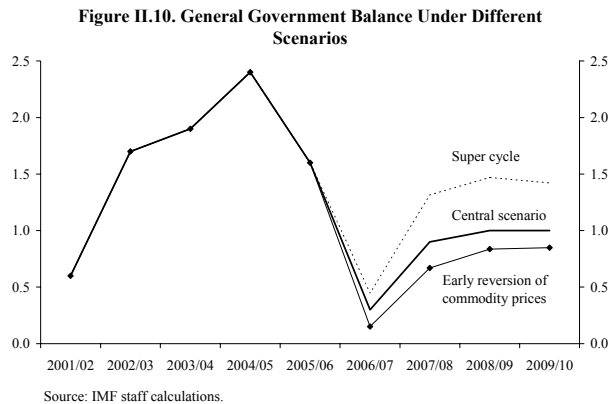


about 20 percent above the long-run average. This scenario is similar to the assumption used by the Budget for 2006/07.²⁸ The second scenario—the “super cycle” scenario—assumes that export commodity prices continue growing at the current rate until end-2007 and then stay at that level. Finally, the third scenario assumes that commodity prices start falling in the second half of 2006, reach their historical average in two years, and remain constant thereafter.

28. The three different scenarios for export commodity prices result in three different projected paths for the general government balance (Figure II.10).

Since the central scenario is similar to the assumptions in the 2006/07 budget, we assume that the projected general government balance in the 2006/07 budget will materialize under that scenario. We then assume that if commodity prices turn out to be higher or lower than in the

budget projections, the resulting difference in revenue will simply translate directly into a higher or lower general government balance.²⁹ Even under the least favorable of the three scenarios the government balance remains in surplus during the projection period. The reason is that the 2006/07 budget already incorporates a fairly conservative assumption about commodity prices, and making it even more conservative does not significantly change the projection. On the other hand, in the “super cycle” scenario, the general government balance is projected to reach 1.5 percent of GDP in the medium term, compared with 1 percent of GDP in the 2006/07 budget.



F. Conclusions

29. Australia’s fiscal policy appears to be broadly consistent with guidelines for fiscal management in the face of commodity price swings. The analysis above suggests that the impact of export commodity prices on government revenue has grown in recent years, reaching ½ percent of GDP in 2005/06. Nevertheless, the general government balance adjusted for the commodity price effect remained positive during the recent commodity price boom, suggesting that high commodity prices were not the main driving force behind the strong fiscal performance. Looking ahead, even under the most conservative assumption about commodity prices the general government balance is expected to remain in surplus in the medium term.

¹⁰ The 2006/07 budget assumes that commodity prices fall in two discrete jumps, in 2007 and 2008, and stay flat in between, whereas we assume a smooth decline over the two years of the same magnitude.

¹¹ In other words, we assume that higher or lower commodity prices (and therefore revenue) will not result in any change in policies.

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