

Australia: Selected Issues

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AUSTRALIA

Selected Issues

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Approved by the Asia and Pacific Department

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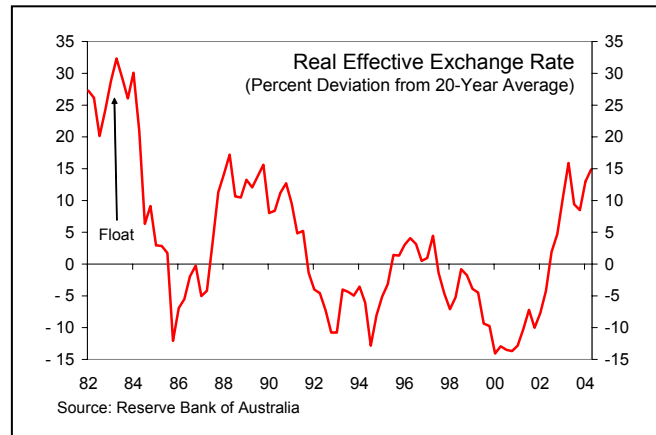
	Contents	Page
I.	Australia's Adaptation to a Floating Exchange Rate	3
	A. Floating the Australian Dollar—Taking An Upward Exit.....	3
	B. Overcoming Challenges in the Early Years of the Float	5
	C. How Has the Economy Adapted Since the Float?	8
	D. Why Does the Australian Dollar Exchange Rate Fluctuate?	11
	E. What are the Economic Results Since the Float?	12
	References.....	15
II.	The Proposed Future Fund: An International Comparison.....	17
	A. Introduction and Summary	17
	B. Main Elements of the Future Fund Proposal	17
	C. How Does the Future Fund Compare Internationally?	20
	References.....	25
III.	Financial Integration in Asia: Estimating the Risk-Sharing Gains for Australia and Other Countries.....	26
	A. Financial Integration Reduces Risk	26
	B. Estimation Strategy and Data.....	28
	C. Results for Australia	29
	D. Results for Other Economies	31
	E. Discussion.....	35
	References.....	40

	Page
Contents	
Figures	
II.1. The Future Fund: Illustrative Asset Accumulation to Cover the Unfunded Liability.....	19
III.1. Share of Foreign Equity in Equity Portfolios	26
III.2. Capital Account Restrictions	28
III.3. Risk Return Tradeoff	31
III.4. Log Wealth for an Australian Investor Facing Exogenous Stock Returns	31
III.5. Correlations of Real Stock Returns.....	31
III.6. Risk-Return Tradeoff.....	32
Tables	
II.1. Selected Public Pension Funds	24
III.1. Correlation in Real Per Capita Consumption Growth Rates	27
III.2. Real Stock Returns for Australia	29
III.3. Welfare Gains from Financial Integration with Japan.....	30
III.4. Welfare Gains from Financial Integration with Asia3.....	30
III.5. Welfare Gains from Financial Integration with the World.....	30
III.6. Welfare Gains from Financial Integration	33
Annexes	
III.1. Estimation Methodology.....	37
III.2. Data Sources and Construction.....	39

I. AUSTRALIA'S ADAPTATION TO A FLOATING EXCHANGE RATE¹

1. **Floating the exchange rate in December 1983 has contributed to Australia's improved economic performance.** The Australian dollar (A\$) has swung through wide ranges in the two decades since it was floated. Nonetheless, the flexible A\$ has stabilized economic activity by allowing the Reserve Bank of Australia (RBA) to pursue an independent monetary policy, while market-led exchange rate adjustments have also tempered the impact of external shocks.

Moreover, the float was a keystone for broader structural reforms, some of which may not have been feasible otherwise, or which would not have worked as well in the absence of exchange rate flexibility. The benefits of these reforms are evident in Australia's sustained strong growth in the past 14 years. Australia's experience may be of broader interest, and this chapter discusses how Australia's economy has adapted to a flexible A\$, and the

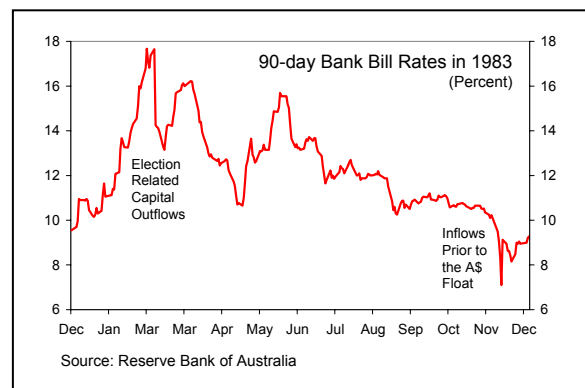


economic results, after providing a background on the float and the initial policy challenges.

A. Floating the Australian Dollar—Taking An Upward Exit

2. **Australia had a range of exchange rate regimes in the postwar period.** The A\$ was fixed to the U.K. pound sterling (to November 1971), the U.S. dollar (to September 1974), and then to the Reserve Bank of Australia's (RBA) trade weighted index (TWI) of the exchange rate. A "crawling peg" to the TWI was used to set the A\$ from November 1976 to December 1983. With the RBA required to clear the market in foreign currency at a set rate, its ability to manage domestic liquidity and hence to control interest rates was reduced.

3. **Volatile capital flows increasingly exerted pressures on the economy.** The postwar financial regulatory system relied on a range of restrictions on the activities of banks, leading to a growing role for nonbank financial institutions (NBFIs), such as merchant banks to service corporations and building societies to service households. Capital flows became increasingly volatile and sensitive to interest rates, partly because merchant banks could access funds from their



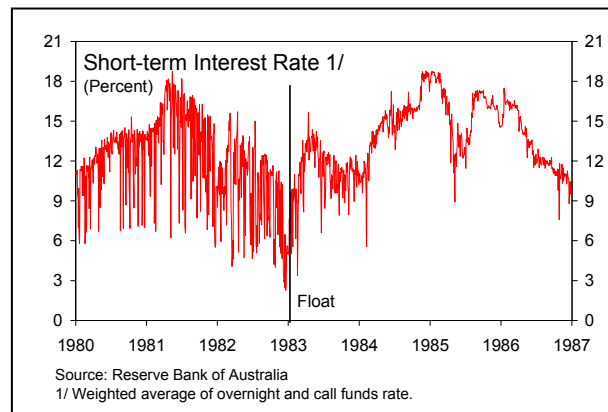
¹ Prepared by Craig Beaumont (Ext. 37411) and Li Cui (Ext. 36539).

overseas parents. In particular, heavy capital outflows were experienced during the March 1983 general elections, reducing reserves and lifting interest rates sharply. The newly elected Labour Government was forced to devalue the A\$ by 10 percent within a few days.

4. **Liberalization of the financial system, coupled with a float of the A\$, had been recommended to overcome these problems.** To allocate savings more efficiently and foster financial system development, the 1981 Campbell Committee of Inquiry recommended reforms including the removal of ceilings on bank deposit interest rates, the relaxation of capital controls, removal of restrictions on the entry of foreign banks, coupled with enhanced prudential regulation. The report also supported floating the A\$ to allow an independent monetary policy. These recommendations were endorsed by a later review, and the Government progressively deregulated the financial system in the mid-1980s.

5. **When capital flows turned around in late 1983, Australia took the opportunity for an upward exit.** Capital inflows had put pressure on the exchange rate for many days, pushing interest rates to very low levels, and financial markets generally expected a revaluation of the peg. Instead, the government announced its decision to float the exchange rate on December 9, 1983, with effect from the next business day.² On the day of the float, the Australian dollar appreciated from 90¼ U.S. cents to 91 cents, although it displayed significant intraday volatility, peaking at 92.6 cents. The exchange rate went on to peak at 96.7 cents in March 1984.

6. **Domestic monetary control was greatly enhanced, as evident in the substantial decline in interest rate volatility after the float.** An earlier contribution to improved monetary control was the introduction of tender systems for issuing Treasury notes in 1980 and Treasury bonds in 1982, which removed the RBA's responsibility for covering any shortfalls in government debt issuance.



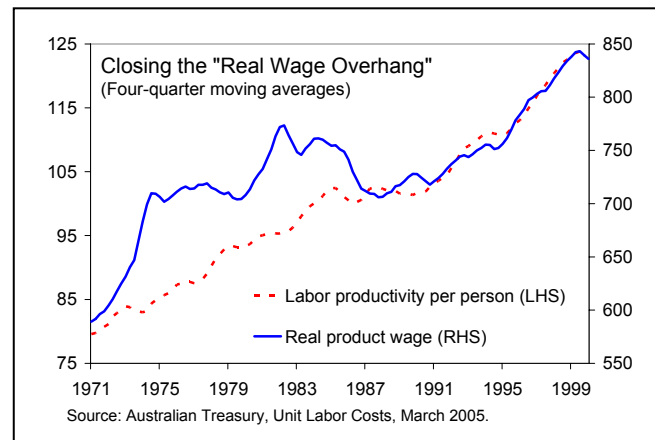
7. **Opening debt markets to foreign investors helped the A\$ market to soon become among the most liquid in the world.** Establishing the Treasury securities market underpinned the development of money markets, which, together with a liberalization of foreign portfolio investment in 1980, laid the foundation for a well functioning foreign exchange market. Some initial exchange rate volatility was experienced, but the market soon matured (Fraser, 1992). By 1989 the A\$ was the 6th most actively traded currency in the world, well ahead of Australia's ranking as the 12th largest economy at the time, partly reflecting the diversification opportunity the A\$ offers to international investors (Battelino, 1999).

² In a preparatory step, restrictions on trading in the forward market in foreign exchange were eased in October 1983, which helped to deepen trading in advance of the float.

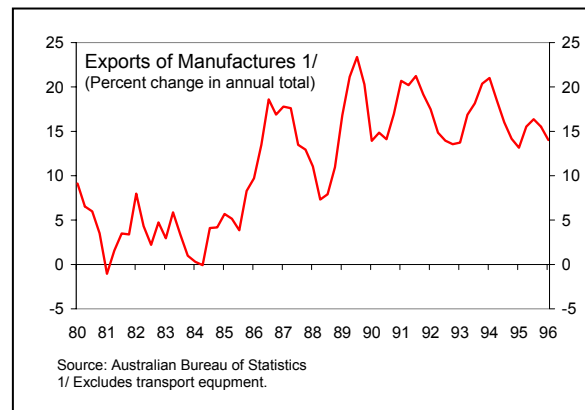
B. Overcoming Challenges in the Early Years of the Float

8. **The Australian economy faced a series of challenges in the initial years of the float.** Growth had been uneven in the decade prior to the float, unemployment had risen since the mid-1970s, and inflation had become entrenched at low double digit rates, where highly centralized wage setting was a key underlying problem. While the deregulation of the financial system and liberalization of the capital account brought increased competition and deeper financial markets, it was also associated with rapid credit growth, relatively large external current account deficits, and a weakening in financial and corporate sector balance sheets. This section outlines how these challenges were overcome, the role the exchange rate played, and draws some lessons from this experience.

9. **Inadequate competitiveness was a key factor slowing growth and raising unemployment.** A “real wage overhang” had developed when real wages increased in response to the terms of trade (TOT) boom in the early 1970s, but, owing to labor market rigidities, remained high even as the TOT fell. With the aim of improving competitiveness the authorities adopted an incomes policy in the form of the “Accord” with unions on wage moderation in exchange for changes in health, education, and tax policies.

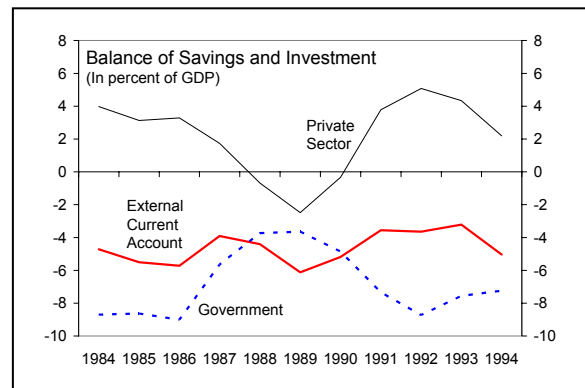


10. **A substantial exchange rate depreciation in 1985–86 improved competitiveness with the support of the Accord, kicking-off export-led growth.** After remaining steady in the first year of the float, the exchange rate fell by almost 40 percent from the end of 1984 to August 1986. This drop was triggered by a 15 percent fall in the terms of trade, but was intensified by Treasurer Keating’s public comment in May 1986 that Australia risked becoming a “banana republic,” which crystallized public concerns about the external position. Nonetheless, most of this adjustment proved to be structural, with the average real exchange rate in the next two decades being 29 percent below its average in 1984. By containing the development of a renewed wage-price spiral, the Accord played a crucial role in making these competitiveness gains lasting. Strong export growth followed, especially in manufacturing, which also benefited from export market development grants and greater access to financing due to financial deregulation.



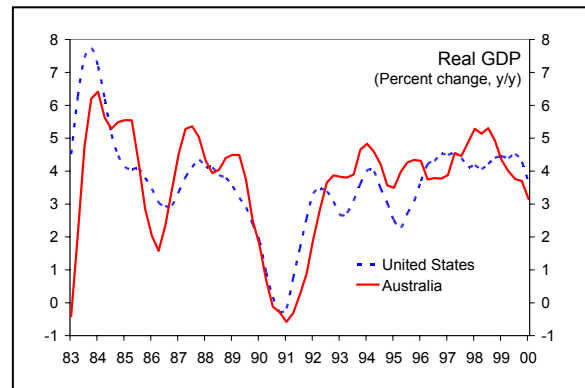
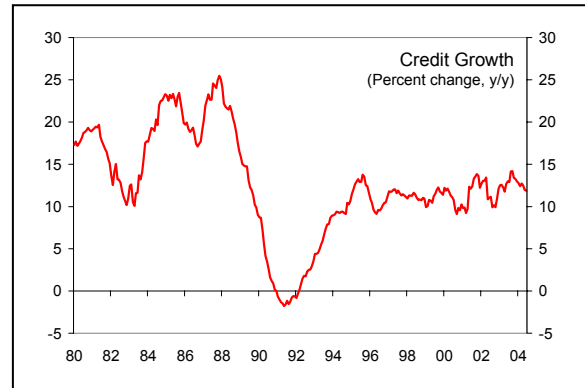
11. **However, the sharp A\$ fall highlighted some weaknesses in private sector risk management, and it also delayed progress on lowering inflation.** Unhedged borrowing in low yielding foreign currencies such as the Swiss franc became popular in the mid-1980s, especially among farmers and small businesses, with domestic financial institutions being the main lenders. These borrowers faced large losses when the exchange rate fell in 1985–86, and many went out of business, with loan defaults and court actions quickly deterring further foreign currency lending. In addition, after declining to 3 percent in 1984, inflation rose back to around 8–10 percent, largely due to higher prices for tradable goods, prompting the RBA to raise interest rates to limit the risk of second round inflation effects.

12. **The financial sector responded vigorously to deregulation, with substantial side effects for macroeconomic developments.** From 1983 to 1988 the amount of capital in the financial sector more than quadrupled as the number of banking groups rose from 15 to 34, and the number of merchant banks from 48 to 111. Credit expanded rapidly, growing almost 150 percent in this period, which was reflected in a rise in corporate gearing associated with a wave of leveraged corporate takeovers in 1984–87, and a property boom after 1987. Rising private investment was coupled with declining household savings, resulting in current account deficits (CAD) that were large by historical standards, at 5 percent of GDP on average in 1985–89, compared with 3¼ percent in the previous decade. Net foreign debt doubled in only two years to 31 percent of GDP by mid-1986, with valuation losses due to the A\$ depreciation adding to the effects of higher CADs.



13. **In this environment, the floating exchange rate played a key role in disciplining economic policy and galvanizing the implementation of reforms.** During the first five years after the float a correlation between the A\$ exchange rate and consumer confidence emerged, and public debate on economic policies focused on the CAD and external debt. Political support for reforms could therefore be mobilized on the basis that they would enhance competitiveness or increase savings, and thereby strengthen the external position, with less emphasis placed on the benefits for living standards. This pattern is evident in the fiscal consolidation after the float, which over 5 years increased the underlying cash balance by 5¼ percentage points of GDP to a surplus of 1¼ percent of GDP in the 1988/89 fiscal year, serving to avoid a greater deterioration in the CAD. It is also seen in the broader liberalization of foreign investment in Australia that followed the sharp fall in the exchange rate in mid-1986, and in the adoption of mandatory private superannuation in 1993.

14. **Financial deregulation was also followed by a decline in financial sector health, making the recession in the early 1990s more protracted.** The RBA raised interest rates in the late 1980s, which, coupled with declining prices for shares and commercial property, made the underlying poor quality of credit more evident. The share of NPLs rose to about 6 percent on average, and although Australia avoided a full blown banking crisis, the deterioration in financial sector soundness was significant.³ The 1990–91 recession was initiated by external shocks, but the rebuilding of capital by financial institutions and by corporations slowed investment and credit growth, tending to delay the recovery. While the recession was of a similar magnitude as in the U.S., unemployment in Australia rose by 4½ percentage points 1990–91, much larger than the 1¾ percentage point rise in the U.S. This is consistent with anecdotal evidence that the recession in Australia was associated with substantial restructuring by firms, as efficiency gains made possible by structural reforms were realized.



15. **Exchange rate flexibility aided the recovery.** Utilizing its monetary independence fully, the RBA cut interest rates by 6 percentage points in 1990, and by a further 7¼ percentage points by mid-1993. Moreover, the A\$ depreciated substantially, falling by over 20 percent in real effective terms in the two years after the third quarter of 1991. Nonetheless, it is notable that the decline in the A\$ began some time after interest rate cuts began in early 1990, and also after the terms of trade began falling in late 1990.⁴ This may have been a period when the exchange rate was overshooting, indeed, the RBA intervened in both October 1990 and May 1991 to resist an appreciation of the A\$, which it considered overly strong relative to fundamentals.

³ Two of the largest banks faced substantial losses, some banks owned by the States were recapitalized or taken over, and a number of NBFIs were closed.

⁴ One interpretation of this apparent slow adjustment is that “fundamentalists” traders only enter the market when there are substantial deviations from fundamentals from which they can profit through speculation, while in normal times the market is dominated by “chartists,” see Djoudad *et al* (2000).

16. **Some lessons can be drawn from Australia’s initial experience with a floating exchange rate**, most of which are common to other countries:

- **There are tradeoffs in the pace of financial deregulation and capital account liberalization, and careful sequencing may help contain transition costs.** Floating the A\$ made it possible to liberalize capital flows and the financial system, but, in hindsight, an earlier strengthening of supervision was needed (Australian Treasury, 2003). Perhaps more gradual liberalization of the capital account and the financial system could have eased the macroeconomic side effects, but the development of key financial markets, such as those in FX hedging instruments, would likely have slowed.
- **Labor market flexibility is needed to help a floating exchange rate cushion external shocks effectively.** The Accord served to achieve flexibility in real wages at the outset of the float, such that a nominal exchange rate depreciation led to a lasting improvement in competitiveness. However, incomes policies can be difficult to sustain over time, suggesting that the underlying labor market rigidities would need to be addressed to help the economy cope with future external shocks.
- **Macroeconomic policies need to combine predictability with short-term flexibility.** The float strengthened incentives to make policies more predictable, as there were periods when uncertainty about macroeconomic policy intentions added to A\$ volatility. The benefits of putting macroeconomic policies on a medium-term footing were recognized in the 1980s, but taking this step was difficult given the macroeconomic effects of financial deregulation and pressures arising from the lack of microeconomic flexibility. Moreover, a simple policy rule would not be adequate, as substantial short-term flexibility was needed, with, for example, the fiscal balance declining by almost 6 percentage points of GDP by 1992/93 following the 1990–91 recession.

C. How Has the Economy Adapted Since the Float?

Economic reforms since the float have been wide ranging. Frameworks for macroeconomic policy have been adopted which use transparency to enhance policy predictability while retaining a high degree of flexibility in the short-run. Structural reforms have increased the efficiency of goods and labor markets, and a unification of financial supervision has reinforced incentives for sound private sector risk management. Together these reforms have strengthened the resilience of the economy, including to potential exchange rate swings.

17. **Monetary policy evolved toward an inflation targeting (IT) framework.** Owing to a breakdown in monetary relationships after financial deregulation, the monetary targets which had been in place since 1976 were abandoned in February 1985 (Grenville, 1997). Monetary policy initially played a supporting role for fiscal and incomes policies in seeking to improve competitiveness while containing inflation, and a “checklist” of indicators helped guide policy in 1985–86. In the context of the asset price boom of 1987–89, indicators of future inflation, such as demand and inflation expectations, gained increasing prominence. The RBA’s 1989 Annual Report identified the reduction of inflation—then running at 7–8 percent—as the central priority for monetary policy. A reduction in underlying inflation

to less than 3 percent was achieved by mid-1992, after the unexpectedly severe 1990–91 recession, and the RBA announced in 1993 that it would be targeting 2–3 percent inflation.

18. **The design of the Australian IT framework includes an emphasis on preserving short-term flexibility.** In particular, the inflation target is to be pursued on average over the economic cycle. This formulation recognized the risk that output and interest rates could be unnecessarily volatile if the central bank sought to achieve the inflation target in every period, and other countries with IT frameworks have tended to adopt a similar degree of flexibility once low inflation had gained credibility. To enhance predictability in policies, the RBA releases a detailed *Statement on Monetary Policy* on a quarterly basis, it explains any changes in the target cash rate, and senior staff often give speeches. The operational independence of the RBA was formally recognized by the Treasurer in the 1996 *Statement on the Conduct of Monetary Policy*, and the RBA Governor makes semi-annual appearances before a parliamentary committee to ensure accountability.

19. **Monetary policy in Australia has seldom responded to A\$ developments since the float, but the RBA has not pursued a policy of benign neglect to the exchange rate.** The few instances when interest rates were adjusted in response to exchange rate moves occurred early in the float. In July 1986 and January 1987 policy was tightened in response to steep falls in exchange rate, while in October 1990 and May 1991 the RBA supported intervention against excessive strength in the exchange rate with interest rate cuts. Nonetheless, foreign exchange markets are not perfect, and the RBA considers intervention to be useful in circumstances where market imperfections are resulting in overshooting, and also to calm markets threatening to become disorderly. However, interventions tend to be infrequent, near the peaks and troughs of the exchange rate cycle, as the RBA does not treat the A\$ as overshooting unless it has already moved a considerable way from its normal level, or at least a level that can be explained by what is happening in the economic and financial environment.⁵ Overall, intervention is not seen as a substitute for monetary policy, but it can play a useful role in limiting extreme movements in the exchange rate (Macfarlane, 1993).

20. **Fiscal policy also adopted a medium-term focus and a high degree of transparency.** As the economy recovered from the 1990–91 recession, the authorities steadily consolidated the fiscal position, returning the Commonwealth Government to surplus in 1997/98. The *Charter of Budget Honesty Act 1998* lays out principles of sound fiscal management, and commits the government to set out its medium-term fiscal strategy in each budget, to aid the evaluation of whether fiscal policy is consistent with these principles.⁶ In

⁵ Under this approach to intervention, the RBA has made a profit of \$A 5.2 billion on its intervention, suggesting that these operations tended to stabilize the exchange rate (Becker and Sinclair, 2004).

⁶ The principles include: managing fiscal risks prudently, having regard to economic circumstances, including by maintaining general government debt at prudent levels; ensuring that fiscal policy contributes to national saving and moderating cyclical fluctuations in economic activity; spending and tax policies that are reasonably stable and predictable; ensuring that policy decisions have regard to their financial effects on future generations.

1998, within these principles, the Government adopted an explicit strategy to maintain budget balance, on average, over the course of the economic cycle. This clear objective, coupled with regular medium-term reports, enhances the predictability of fiscal policy. Consistent with the strong performance of the economy in the seven years since the adoption of the *Charter*, fiscal surpluses have been achieved with the exception of only 2001/02, when the deficit was small, and the government's net worth has improved by 9 percentage points of GDP, with net debt estimated at only 2 percent of GDP in mid-2005.

21. **Industrial relations reforms boosted labor market flexibility, especially in the mid-1990s.** Wages and conditions of work had been determined by a complex set of high prescriptive and centrally-determined “awards” since early in the 20th century in Australia, with the objective of promoting equity and justice. As a consequence of this centralization, wage pressures in one sector or region would quickly spillover to other parts of the economy, reducing relative wage flexibility and increasing the inflationary impact of shocks. This process was aided by limited competition in goods markets. There was a progressive decentralization of bargaining beginning from the 1980s, with significant reforms achieved with the *Workplace Relations Act 1996*, which redefined the role of awards to be more of safety net of minimum standards for collective or individual agreements negotiated directly with enterprises.⁷ By 2002 the share of employees relying on awards for pay rises had fallen to 20 percent from 67 percent in 1990. The change in labor market dynamics has been evident in recent years, as demand for workers in construction and mining has been very strong, but spillovers into generalized wage pressures has not been observed.

22. **Broader microeconomic reforms also increased the competitiveness and flexibility of the economy.** A steady reduction in tariff protection from the mid-1980s opened the economy to external competition. In the late 1980s, recognizing that the efficiency of the nontraded goods sector—which often provides key inputs to the traded goods sector—was central to Australia's competitiveness, a broad program of microeconomic reforms was pursued, with the commercialization and privatization of government business enterprises, along with reforms of the communications, energy, and transportation sectors. Under the umbrella of the National Competition Policy, agreed to by the Commonwealth and State governments in 1995, barriers to competition were reduced, by, for example, enhancing third-party access to infrastructure. The overall impacts on economic efficiency have been substantial (Productivity Commission, 2005). By containing the adjustment costs associated with reforms, the floating exchange rate may have facilitated structural reforms (Banks, 2005).⁸

23. **Placing financial supervision under a unified framework has encouraged improved private sector risk management.** Financial deregulation was associated with an

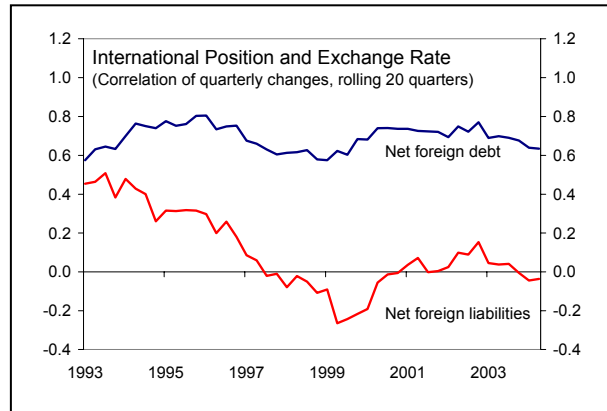
⁷ A detailed discussion of labor market reforms is provided in OECD (2001).

⁸ For example, if trade liberalization impacts negatively on the trade balance, the exchange rate would tend to depreciate, tempering the initial decline in output and employment.

initial deterioration in financial sector health as risk management practices took time to adapt to the new environment, calling for an updated supervisory system. In particular, financial supervision had been based mainly on the institutional forms of service providers; as financial innovations increasingly blurred the boundaries between different industries, this framework sometimes left regulatory gaps. Following the report of the Wallis Committee, a single regulator, the Australian Prudential Regulation Authority, was established in 1997 with responsibility for the entire financial sector. The new framework emphasized greater reliance on disclosure and market-based signals rather than industry-specific regulations, helping promote sound private sector risk management practices by providing additional market discipline and ensuring early detection of financial difficulties.

24. **Foreign exchange hedging is now extensive, reducing vulnerability to exchange rate fluctuations.** Private sector experience with the floating A\$, such as the losses by farmers borrowing in Swiss francs in 1985–86, reinforced by corporate disclosure requirements and prudential regulations, increased demand for instruments to manage FX risk. Markets in these instruments have become deep, with turnover in forwards, swaps, and derivatives being 2½ times that in the spot market (BIS, 2005). Even though net external debt is 50 percent of GDP,

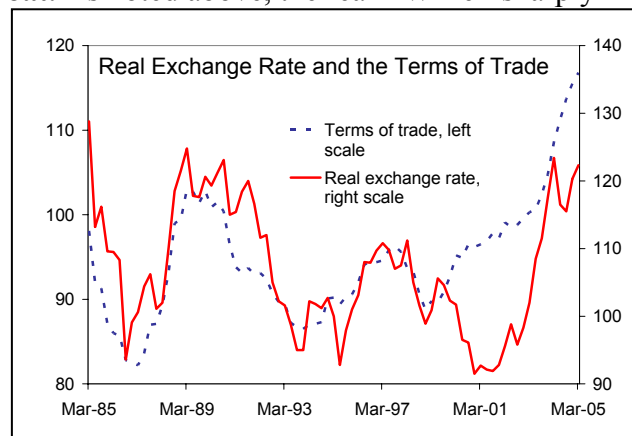
a 2001 survey by the Australian Bureau of Statistics showed that, taking into account derivative positions, Australian entities had a net long foreign currency position of 22 percent of GDP (RBA, 2002). Indeed, due to hedging practices, the country's international investment position is now little affected by exchange rate movements.



D. Why Does the Australian Dollar Exchange Rate Fluctuate?

25. **Australia's real exchange rate has fluctuated significantly since the float, although it was also volatile prior to the float.** As noted above, the real TWI fell sharply in

1985–86, an adjustment which has proven to be lasting. Since then, the real TWI has fluctuated around an apparently stable trend, with peaks and troughs about 15 percent above and below its average level. Interestingly, the standard deviation of monthly changes in the real TWI is only slightly higher in the post float era than that during 1970–83, reflecting the frequent devaluations and revaluations, and volatile inflation owing to large swings in international commodity prices.



26. **Most major swings in the A\$ during the float have been linked to TOT developments.** Since the 1985–86 adjustment, the major swings have included:

- 1988–89: Large appreciation (22 percent in year to 1989Q1) associated with a 15 percent rise in the TOT and higher interest rates.
- 1991–93: Large depreciation (21 percent in two years ended 1993Q3) following a large fall in interest rates and a fall in the terms of trade.
- 1998: Depreciation (8 percent in year ended 1998Q4) as the Asian crisis led to a decline in the Australia’s export prices and the terms of trade.
- 1999–2000: Further depreciation (13 percent in the 18 months to 2000Q4), despite an improving terms of trade and a rise in interest differentials as Australia cut interest rates by less than other countries more affected by the global IT slow-down.
- 2003–03: Large appreciation (27 percent in two years to 2003Q4), apparently correcting the low level of the A\$ in 2000–01 and responding to the continued increase in the terms of trade, while interest rates rose only modestly.

27. **More formal analysis confirms the importance of the TOT for A\$ movements.**

Along with interest rates, shifts in the terms of trade were identified as the key factor in driving the A\$ by Blundell-Wignall and Gregory (1990) and Blundell-Wignall *et al* (1993). Rises in terms of trade reflect an increased demand for Australian commodities, and thus shift the equilibrium real exchange rate required to maintain balance of payments equilibrium.⁹ Nonetheless, as would be expected given the general difficulty of predicting floating exchange rates, there have been periods when this pattern does not appear to hold, including the somewhat delayed depreciation of the A\$ in the early 1990s (Section B), and the unusually weak A\$ earlier in this decade. Most recently, the A\$ has appreciated less than might be expected given the rising TOT, possibly because part of these gains are expected to be temporary.

E. What are the Economic Results Since the Float?

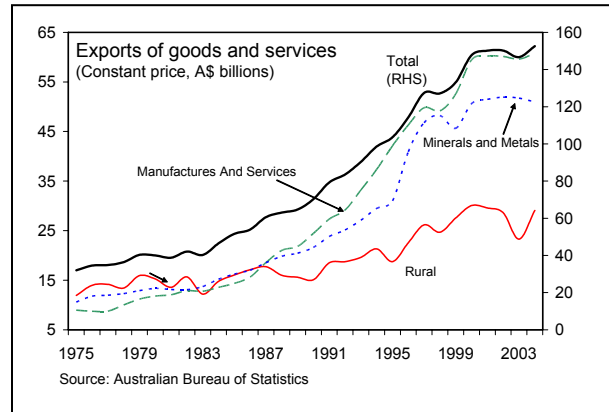
28. **Floating the A\$ preceded a turning point in Australia’s overall economic performance.** Australia has enjoyed a strong and sustained economic expansion in the 14 years since the 1990–91 recession, with growth averaging 3.8 percent. As a result, unemployment has fallen by 6 percentage points from its peak in 1993 to reach 5 percent in mid-2005, and per capita incomes (PPP basis) have risen from the OECD average in 1991 to

⁹ The high correlation of the real TWI and the TOT has puzzled some researchers, as the TOT appears to have a significant cyclical component, and the deviations should have been perceived as largely transitory (Gregory, 1993). Gruen and Kortian (1996) suggested these might reflect a lack of market efficiency and the short-sightedness of investors. An alternative explanation is that the TOT are forward-looking and may not be as predictable as argued (Douglas, *et al* 1997).

almost 10 percent above average by 2003. The floating A\$ contributed to this strong economic performance in a number of ways. First, it induced the sharp initial adjustment in competitiveness in 1985–86. Second, the floating exchange rate helped to galvanize political consensus on the implementation of structural reforms as discussed earlier. Finally, it also facilitated structural reforms by enhancing macroeconomic stability, which is the focus of the remainder of this section.

29. Exports remained robust through the 1990s even as the exchange rate fluctuated.

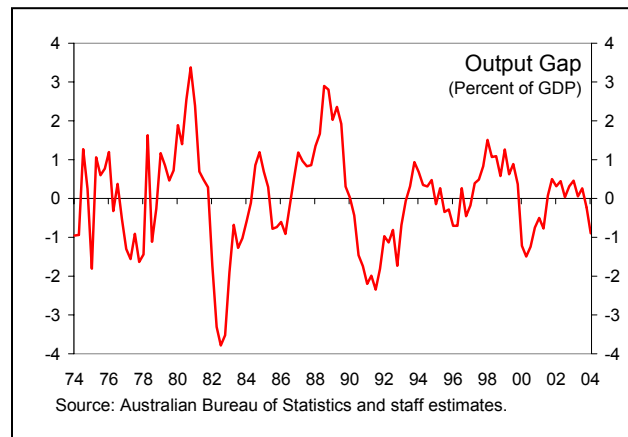
International research is largely inconclusive on whether exchange rate volatility impedes trade and investment (Clark *et al*, 2004). In the case of Australia, exports performed well through the 1990s, with manufacturing and services exports—which are likely more sensitive to the exchange rate than mining or agricultural commodities—growing at average annual rate of 12 percent from 1985 to 2000. This



strong performance may reflect foreign exchange hedging, the benefits of structural reforms, and the increased integration with Asian markets. The sunk costs of entering foreign markets (market research, establishing distribution networks, etc.), may also help explain the resilience of exports to exchange rate volatility (Menzies and Heenan, 1993). Manufacturing export growth has slowed in recent years, reflecting more intense global competition, as well as the appreciation of the A\$ (Kennedy *et al*, 2005).

30. The amplitude of Australia’s economic cycles has declined over time, partly owing to structural reforms.

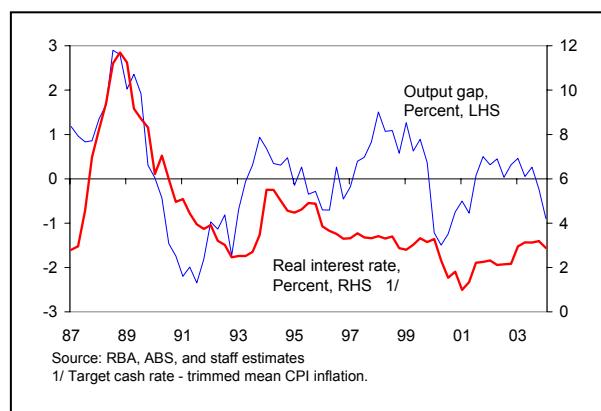
In the 14 years since 1992, the standard deviation of output gap estimates have declined to $\frac{3}{4}$ percent, compared with $1\frac{2}{3}$ percent in the 10 years prior to the float, and $1\frac{1}{2}$ percent in the 1984–92 period.¹⁰ Similar declines in output volatility have been observed in some other advanced economies (Cotis and Coppel, 2005), and recent research finds that these declines partly reflect the liberalization of product, labor, and financial markets tending to reduce both the scale and impact of shocks (Kent *et al*, 2005).



¹⁰ Staff estimates of the output gap use a Hodrick-Prescott filter on GDP excluding agriculture and mining—fluctuations in the output of these two sectors are treated as supply shocks.

31. Running monetary policy within an IT framework, as permitted by the float of the A\$, has promoted economic stability.

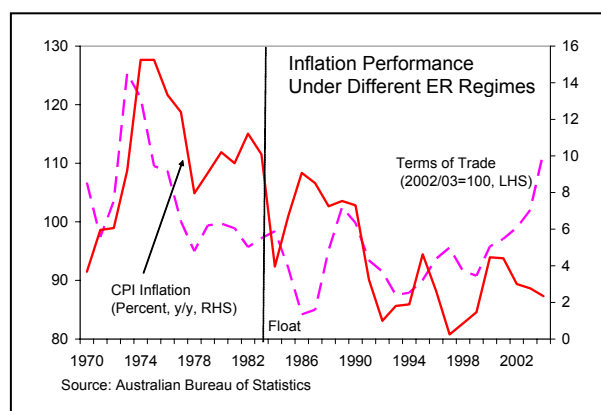
As would be expected, in seeking to maintain inflation around the target rate on average, the RBA has adjusted interest rates to lean against the business cycle trends, thereby tending to moderate the peaks and troughs in the cycle. Research also finds that Australia's relatively low propensity to adjust monetary policy in response to changes in the exchange rate has further enhanced economic stability (Clinton, 2001). This approach to monetary policy is facilitated by the medium-term focus of the inflation target, along with the decline in the pass-through of exchange rate changes into inflation as the credibility of low inflation has risen, and as competition in goods markets has increased due to reforms (Ouliaris, 2005).



This approach to monetary policy is facilitated by the medium-term focus of the inflation target, along with the decline in the pass-through of exchange rate changes into inflation as the credibility of low inflation has risen, and as competition in goods markets has increased due to reforms (Ouliaris, 2005).

32. Exchange rate flexibility has also contributed to economic stability by helping insulate the economy from external shocks.

In the early 1970s, a sharp rise in Australia's terms of trade boosted demand and raised inflation to double-digit levels. Since the float, however, as the A\$ responds to TOT shocks, their macroeconomic impact has diminished. For example, the recent rise in the terms of trade has been associated with a stronger A\$, which has eased inflation pressures by reducing tradable goods prices and channeling part of the increase in domestic demand into imports. Indeed, Clinton (2001) finds that the typical reaction of the A\$ to commodity price shocks is broadly of the magnitude needed to stabilize GDP growth.



For example, the recent rise in the terms of trade has been associated with a stronger A\$, which has eased inflation pressures by reducing tradable goods prices and channeling part of the increase in domestic demand into imports. Indeed, Clinton (2001) finds that the typical reaction of the A\$ to commodity price shocks is broadly of the magnitude needed to stabilize GDP growth.

33. Australia's economic resilience during the Asian crisis was a clear example of flexibility in the A\$ helping to sustain growth.

Australia's terms of trade fell by 7 percent y/y by 1998Q4 as commodity prices fell owing to the 1997–98 Asian crisis. The 8 percent decline in the real TWI over the same period contributed to a slowing in import growth, from 10½ percent y/y in 1997 to 6 percent in 1998, even as final domestic demand growth remained at 5 percent. With inflation remaining broadly stable despite the decline in the A\$, interest rates were not changed until a 25 basis point reduction in the target cash rate in late 1998. Overall, Australia's real GDP growth remained at 4 to 5 percent in 1998 and 1999 at a time when key trading partners were facing severe economic contractions.

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II. THE PROPOSED FUTURE FUND: AN INTERNATIONAL COMPARISON¹¹

A. Introduction and Summary

34. **The 2005/06 budget announced that a Future Fund (FF) would be established to cover the liability of the Commonwealth from the unfunded public sector superannuation schemes.** It is envisaged to contribute to increased savings and government net worth and to help provide resources to cover a part of future fiscal spending, thereby helping to address the challenge of an ageing population. The full details of the FF and the associated legislation are expected to be released later this year.

35. **This chapter discusses the main elements of the FF proposal and compares it with similar programs in other countries.** A number of useful lessons can be drawn from international experience regarding the governance structure and investment options for the FF. In particular, to ensure proper governance, it will be critical to establish legislation that provides market-based and objective criteria to gauge the FF performance, operational independence from the government, and adequate reporting and accountability mechanisms. The investment policy should take into account the implications for the government's balance sheet and the impact on the domestic capital market. While portfolio limits on foreign investments do not seem warranted for the FF, restrictions on holding controlling stakes in domestic entities and domestic government bonds may be appropriate.

B. Main Elements of the Future Fund Proposal

Purpose

36. **The aim of the FF is to accumulate sufficient financial assets by 2020 to fully cover the unfunded public sector superannuation liabilities of the Commonwealth Government.** While superannuation of private sector employees and that of most new public sector employees are covered by funded superannuation plans,¹² superannuation of public servants—most of which is owed to past government workers—is the largest financial liability of the Australian Government.¹³ This liability, which is estimated at around

¹¹ Prepared by Li Cui (Ext. 36539).

¹² Superannuation is financed by employment related contributions. This differs from the non-contributory age pension which provides a safety net for the elderly and is financed out of general taxation. See Carey (1999) for further discussion.

¹³ In particular, superannuation liability accruing under the Commonwealth Superannuation Scheme (CSS) and the Defense Force Retirement Benefit Scheme (DFRDB) are completely unfunded. Liabilities accruing under the Military Superannuation and Benefits Scheme (MSBS) and the Public Sector Superannuation Scheme (PSS) are partly funded. These schemes account for about 95 percent of the Commonwealth's superannuation liabilities. The Commonwealth Government has closed these schemes, with the exception of the MSBS, to new entrants, so that the Government will pay the superannuation obligation for new public servants as they accrue rather than adding to the

(continued)

\$A 91 billion in 2005 (10½ percent of GDP) and is expected to grow to \$A 140 billion by 2020, is currently met on a pay-as-you-go (PAYG) basis. Under the proposal, the FF will set aside capital to finance these unfunded liabilities.

37. **The FF is part of a broad effort to meet the challenges of an ageing population by reducing the call on the budget in future years.** It is estimated that a fiscal financing gap of about 6½ percent of GDP will emerge by 2042 due to rising healthcare costs and population ageing if policies remain unchanged.¹⁴ Although the ageing process in Australia is relatively gradual, allowing the government to address the long term fiscal gap through structural reforms to enhance productivity and increase labor participation, fiscal measures to increase public savings can also make a valuable contribution. In particular, the FF will narrow the fiscal gap by ½ percent of GDP by providing resources to cover superannuation payments which would otherwise be met from current revenues.

38. **The FF also provides a vehicle to invest government surpluses in an environment of low public debt.** Reflecting fiscal surpluses and asset sales over the past several years, net debt of the Commonwealth Government has almost been eliminated (3 percent of GDP in 2003/04). The Government has decided to maintain the domestic debt market to facilitate private sector interest rate risk management, and fiscal surpluses in recent years have been deposited with the Reserve Bank of Australia. The FF would enable the investments of budget surpluses in a range of financial assets that yield higher returns than bank deposits.

Source and Use of Funds

39. **The FF will be financed mainly by the realized budget surpluses and can only be used to meet public sector superannuation payments.** The Government plans to provide seed capital of about \$16 billion—including the 2004/05 budget surplus once it is realized and Government deposits at the Reserve Bank. Each year the Government will allocate part or all of the realized fiscal surpluses to the FF, and will reinvest the earnings from the FF.¹⁵ There is also a possibility that privatization proceeds, for instance those from the sale of the Government's shares in the telecommunication company Telstra, will be placed in the FF. The funds cannot be withdrawn until the unfunded superannuation liability is fully covered, and can then only be used to meet the superannuation payments. To achieve the scheduled

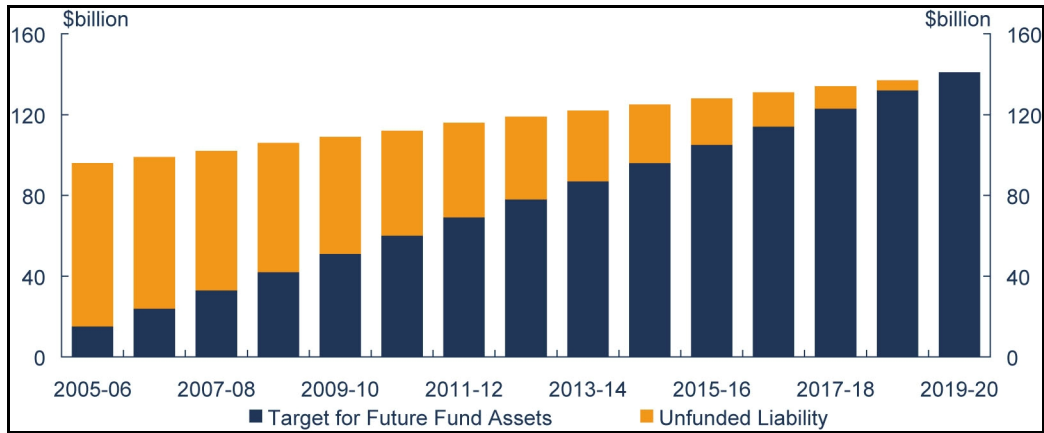
superannuation liability further. Nonetheless, the superannuation liability is expected to rise due to the growth in the MSBS and the entitlements accumulated for existing workers in the other schemes.

¹⁴ The Australian Productivity Commission (2005) estimates that about two-thirds of the gap is accounted for by the increase in healthcare costs, and about a quarter is accounted for by the increase in age pensions.

¹⁵ The investment earnings of the FF are excluded from the government underlying cash balance and can not be used for budgetary spending.

asset accumulation, it is estimated that an average contribution of about ¼ percent of GDP will be needed each year (Figure II.1).¹⁶

Figure II.1: The Future Fund: Illustrative Asset Accumulation to Cover the Unfunded Liability¹⁷



Management—Governance and Investment

40. **The FF will be governed by an independent statutory board, with day to day asset management contracted out to private fund managers.** The Board members will be selected by the Government for their expertise in investment and corporate governance, and will set investment strategies guided by a broad investment mandate to be issued by the Government. Annual reports will be submitted to the Parliament and the public, and auditing will be conducted regularly by external auditors, including by the Australian National Audit Office.

41. **The details of the investment mandate will be announced before the end of the year.** The FF will invest in a range of financial assets, but not directly in projects, including infrastructure projects.¹⁸ Work is ongoing regarding investment options available to the FF, which will likely address the following issues: To what extent will the FF be allowed to invest in Australian government securities? Should the FF be allowed to own controlling shares in domestic entities? And will there be any limit on holding foreign securities?

¹⁶ This estimate assumes that the average investment return on FF assets is about 7 percent each year.

¹⁷ *Budget Overview*, Commonwealth Government, May 2005.

¹⁸ Treasurer Costello, Budget Lock-up Press Conference, May 10, 2005.

C. How Does the Future Fund Compare Internationally?

42. **Other countries are also taking steps to build up reserves to cover future pension payment obligations.** The old-age dependency ratio is projected to rise across the industrial countries, and so is the projected fiscal spending associated with an ageing population. In countries where the public pension has been financed on a PAYG basis, in particular New Zealand, Canada, and Ireland, new initiatives have been launched to shift towards at least partial funding of the system to avoid large tax increases for future generations or a significant reduction in pension benefits. These initiatives have entailed the establishment of the New Zealand Superannuation Fund (NZSF), the National Pension Reserve Fund (NPRF) of Ireland, and the new funding approach for the Canada Pension Plan (CPP). In Sweden, the National Pension Fund (NPF) underwent substantial reforms to strengthen the management of the pension reserves. Although not a pension fund, the Norwegian State Petroleum Fund (SPF) was established in part as a savings vehicle to manage the rising expenditures from population ageing.

43. **While most other funding schemes aim to cover the basic national pension, Australia's FF covers only the occupational pension of civil servants.** In other countries public pension funds have mainly sought to offset the government liability of the basic national schemes (NZSF, CPP, and NPF in Sweden), although the NPRF of Ireland covers civil service pensions as well. As noted, the coverage of the Norwegian SPF is broader—it is intended as reserves for the rising fiscal costs without being earmarked for pension purposes alone.

44. **Nevertheless, the FF shares similar policy issues with these other public pension funds, given the sponsorship by the government and the impact on the government's balance sheet.** There are a set of unique issues facing public pension funds compared to their private counterparts, due to the institutional relationship with governments concerning the funding arrangements, governance, and investment policies. Public pension funds are potentially more vulnerable to political interference, and their investments have direct impact on the government balance sheet. The discussion below compares the FF with other public pension funds in these aspects (Table 1).

Funding

45. **Governments have mostly committed to a level of transfers or a revenue source to achieve the targeted funding.** The New Zealand government will allocate an average of \$NZ 2.3 billion per year (1.2 percent of GDP on average) during 2003–20. The Irish government is required by law to set aside 1 percent of GNP annually by 2025 to be invested in the NPRF. In both cases the contributions are expected to be met through fiscal revenues or privatization proceeds. The Canadian government adopted a “steady-state financing” approach, which increased the contribution rate from 5.6 percent in 1996 to 9.9 percent in 2003, with the additional contributions to be transferred to the CPP for investment. While there is no pre-announced path of asset accumulation for the Norwegian SPF, the source of the funding has not been an issue of concern as most of the revenues from North Sea oil will

be directed into the fund. The funding of the FF, in contrast, is not based on a prior commitment of budget allocation nor an earmarked revenue source; rather, it will rely on future *ex post* budget surpluses.

46. **However, the risks to FF funding are mitigated by the relatively small size of the liability, the commitment to reinvesting the FF earnings, and the expected strong fiscal position.** The strong public finance position, underpinned by the principles of the 1998 Charter of Budget Honesty, places the Australian Government in a more favorable position than many others to fund its public service pension liabilities. The Commonwealth government's net asset position is expected to turn positive in a few years, and the underlying cash balance is projected to be in surplus in the medium term even with the investment earnings of the FF excluded from revenues. In contrast, with significant public debt and large fiscal deficits, other countries frequently find it difficult to set aside funds to meet future obligations.

Governance Arrangements

47. **Transparency, accountability, and independence are the key governance issues for public pension funds.** As the funds are sponsored by the state, the governments could potentially direct the money to achieve political popularity, for instance by investing in infrastructure and housing projects, at the cost of higher risk or lower returns.¹⁹ Funds in other countries have set up governance mechanisms to limit political influences in the investment process.

- **The operation of the funds is benchmarked against market-based objective criteria, with the role of social investment removed or limited.** The legislation provides that the funds aim to maximize returns for the benefit of the plan members subject to a certain level of risk tolerance, with the performance gauged against certain portfolio benchmarks. The CPP and the NPRF of Ireland are explicitly disallowed from making investments for social objectives, while there are some requirements for taking into consideration social and reputation impacts for the NPF of Sweden and the NZSF.²⁰
- **An arm's length relationship of the fund management from the government is important to reduce the scope of political influence.** All the funds are governed by an independent body not directly under the control of the government. The NZSF is governed by a separate Crown entity called the Guardians of the New Zealand Superannuation. The Minister of Finance is required by law not to give any direction that

¹⁹ Investments for political objectives have been shown to be associated with lower returns, such as the case in Korea and Japan. See Iglesias and Palacios (2000) for further discussion.

²⁰ The former is required to state how environmental and ethical considerations are taken into account without relinquishing the overall goal of high return on capital, and the latter is asked to "avoid prejudice to New Zealand's reputation as a responsible member of the world community."

is inconsistent with the duty to invest the NZSF on a prudent, commercial basis. Similarly in Canada, the CPP is governed by an independent Board of professional members. In both cases the selection of the Board members are based on the recommendation of an independent nominating committee. While the members of the governing body for the NRSF of Ireland—the National Pension Reserve Fund Commission—are selected by the Finance Minister, the Commission operates independently of the government. In Norway, the Central Bank directly manages the SPF. Moreover, a large share, if not all, of asset management, is contracted out to external managers with their performance monitored according to market-based benchmarks. This helps to further reduce the scope of political interference.²¹

- **Transparency and accountability are ensured through accounting and auditing requirements.** In all these countries, annual reports are provided to the public and the Parliaments, combined with more frequent publication of financial statements and periodic external audits.

48. **The FF proposal has set out the key elements to achieve good governance.** The governing board will operate independently from the government, although an extra buffer of having an independent nominating committee (such as the case in the NZSF and the CPP) might be desirable to further insulate the FF operation from the government. Alternatively, the independence could be strengthened through legislation that establishes the FF’s purpose, function, and accountability mechanisms. Therefore, it will be important to have a clear commercial objective for the FF, and suitably strong disclosure requirements will enable close scrutiny of FF operations by the public.

Investment

49. **Governments have often imposed some restrictions on the investment options available to these funds.** These restrictions have been justified from the perspective of risk to the government balance sheet, the potential for political influence, and the impact of investments on the domestic capital market.

- **There are explicit limits on holding domestic assets in some cases.** The NPSF of Ireland is prohibited from investing on domestic government securities to resist the temptation of financing government spending. The NZSF and the NPF of Sweden are prohibited from taking controlling stakes in domestic entities in order to ensure that investments are for portfolio purposes only, and to prevent the funds from becoming “excessively” large players in the domestic stock market. In practice, this means that NPF can not have more than 10 percent of voting rights in listed companies or more

²¹ It perhaps also reflects the recognition that privately-managed funds on average outperform publicly-managed funds in achieving higher returns. See Iglesias and Palacios (2000) and Palacios (2002).

than 30 percent in unlisted venture capital firms, and the NZSF can not hold more than 20 percent of any entity's voting shares.

- **In other cases the regulations are with regard to outbound investment due to concerns for the exchange rate.** For instance, the CPP has a 30 percent limit on foreign securities, and the NPF is subject to a 40 percent limit on the unhedged foreign currency exposure. In contrast, all the investment of the Norwegian SPF is made abroad to prevent a rise of the real exchange rate resulting from the inflows of oil revenues. While funds are often subject to the political pressure of “keeping public funds at home,” it is also recognized that such investments are an integral part of optimal portfolio allocation and help to manage the potential impact of the funds on the domestic capital market.

50. **These practices may help shed light on the choice of investment policies for the FF.** First, there appears to be no compelling economic reason to impose portfolio limits on foreign investments by the FF. The asset size of the FF is small compared with that of private superannuation funds—which stood at around \$650 billion or 77 percent of GDP at the end of 2004. Thus the location of the investment of the FF is unlikely to have a significant impact on the exchange rate given that there are already large cross boarder capital flows from the private fund activities. Moreover, purchases of foreign securities will help diversify the FF portfolio. Second, FF investment in Australian government bonds may potentially affect the relative price of the securities, given the small size of the government debt market. Limits on buying government bonds should, therefore, be considered. Third, it might be desirable to prohibit the FF from having a controlling stake in any domestic entity, given the implicit conflict of owning a company that the government also regulates and taxes, although the risk of the FF being used as a government instrument is mitigated by close public scrutiny. Finally, the implications for the government balance sheet should be carefully weighed. Given the nature of shocks to the Australian economy, it has been argued that the investment of the FF should include a broad range of financial assets including nominal domestic debt and foreign equities so as to reduce the impact of macroeconomic shocks on the financial position of the government (Au-Yeung, McDonald, and Sayegh, 2005).

Table II.1. Selected Public Pension Funds

	Coverage	Current or Projected Asset Size (percent of GDP) 1/	Funding Source	Fund Manager	Investment Restrictions
Australia Future Fund 2/	Public service pension	10½	Realized budgetary surpluses	Independent statutory board	TBD
Canada Pension Plan Investment Plan	National pension	13	Increase in the contribution rate from 5.6 in 1996 to 9.9 percent by 2003, and improved investment policies for higher returns	Independently appointed professional board	30 percent on foreign securities
Ireland National Pensions Reserve Fund	Social welfare and public service pension	26	1 percent of GNP annually to 2025 from budgetary transfers	Professional board appointed by the Finance Minister	Prohibited from holding domestic government securities
Sweden National Pension Fund	National pension	23	Transfer of reserves from previous pension funds, and improved investment policies for higher returns	Board appointed by the government and employer/employee organizations	40 percent limit on unhedged foreign currency exposure and 30 percent minimum of high-rated fixed income instruments; no controlling interest in domestic entities.
New Zealand Superannuation Fund	National pension	40	1.2 percent of GDP annually to 2020 from budgetary transfers	Independently appointed professional board	No controlling interest in domestic entities.
Norway State Petroleum Fund	Fiscal costs from an ageing population	54	Revenues from the North Sea oil	Central Bank	All investment made abroad

1/ The projected peak level of assets for Australian FF, CPP, NPRF of Ireland, and NZSF. The CPP figure is based on the projected asset size in 2050 in the 2002–03 CPP annual report and the projected nominal GDP, the NPRF figure is based on Palacios (2002), and the NPZF figure is based on IMF (2004). For NPF of Sweden the figure is as of end-2001, and the Norwegian SPF figure is as of end-2003.

2/ Proposed as in the 2005/06 budget.

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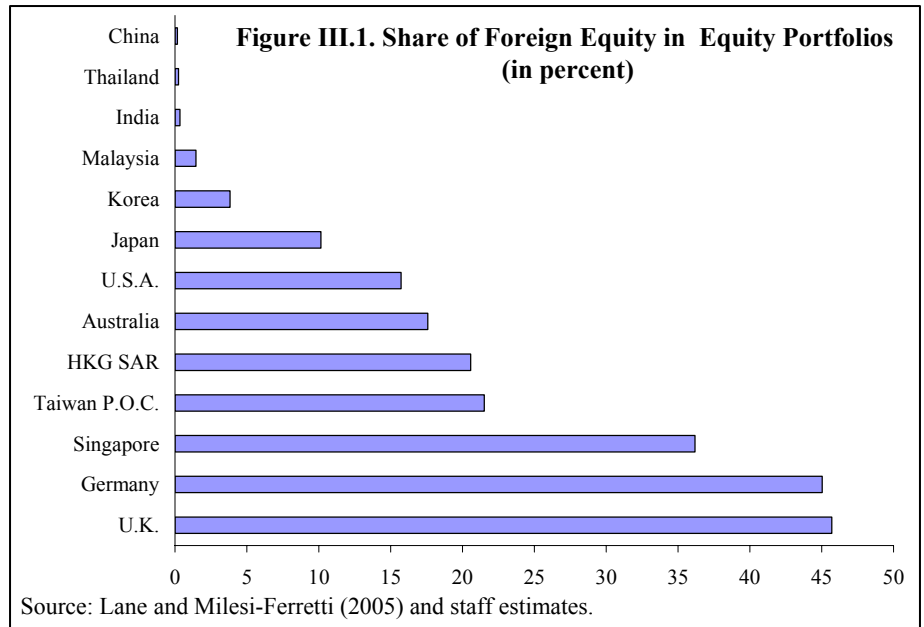
III. FINANCIAL INTEGRATION IN ASIA: ESTIMATING THE RISK-SHARING GAINS FOR AUSTRALIA AND OTHER COUNTRIES²²

51. **Economies are not synchronized.** When one economy is booming, another may be in recession. Holding foreign assets thereof reduces the volatility of a country's income, as it allows countries to share risk. For example, Indonesia experienced a deep recession in the late 1990s, when the Australian economy was booming. Holding more Australian assets would have provided Indonesia with a source of income that would have cushioned the impact of its crisis. This example illustrates that countries can reduce the volatility of their income by diversifying into foreign assets. This chapter estimates how much Australia and other countries in the Asia-Pacific region would gain from greater financial integration. The results suggest that these welfare gains are large, giving an argument in favor of a progressive capital account liberalization across the region, once the needed supporting measures, for example prudential regulation, are in place.

A. Financial Integration Reduces Risk

52. **International diversification reduces risk.** Countries are subject to shocks, but not to the same ones. For example, weather conditions matter a great deal for a large producer of agricultural goods like Australia. But computer chip exporters, like Taiwan Province of China, are more sensitive to shocks on world prices for chips. Investing in foreign assets allows countries to insure themselves against these country-specific risks.

Simply said, diversifying internationally is a way not to put all of one's financial eggs into one basket.



53. **Yet, financial integration is limited in Asia.** In most Asian countries, equity portfolios are largely biased towards domestic stocks (Figure III.1).

²² Prepared by Benoît Mercereau (Ext. 34986). Many thanks to Gian Maria Milesi-Ferretti for sharing the updated Lane and Milesi-Ferretti (2005) database.

54. **Another sign of limited financial integration is the low correlation of countries' consumption growth** (Table III.1). If countries were fully integrated financially, they would hold the same portfolio of assets. Their incomes—and therefore their consumption—would be closely correlated. Yet, this is far from being the case. For example, the correlation of Australia's consumption growth with its closest economic partner, New Zealand, is only 0.5, and Australian consumption growth correlates negatively with a majority of countries in Asia—the average correlation with Asian economies is -0.04. In contrast, the correlation between Euro-zone members averages about 0.6.

	Aus.	Chi.	HKG	Indo.	India	Jap.	Kor.	Mal.	NZL	Phil.	Sing.	Tha.
Australia	1.00	0.12	-0.33	0.09	-0.23	0.25	0.02	-0.15	0.50	-0.27	-0.15	-0.26
China	0.12	1.00	0.01	-0.01	-0.30	-0.39	-0.07	-0.25	0.29	-0.44	-0.09	-0.14
HKG SAR	-0.33	0.01	1.00	0.06	-0.34	0.68	0.56	0.21	-0.27	0.07	0.55	0.48
Indonesia	0.09	-0.01	0.06	1.00	0.16	0.14	0.01	0.11	0.20	0.11	-0.11	0.06
India	-0.23	-0.30	-0.34	0.16	1.00	-0.06	-0.11	0.27	-0.05	0.07	0.26	0.14
Japan	0.25	-0.39	0.68	0.14	-0.06	1.00	0.39	0.00	0.03	0.00	0.33	0.20
Korea	0.02	-0.07	0.56	0.01	-0.11	0.39	1.00	0.38	-0.03	0.03	0.45	0.63
Malaysia	-0.15	-0.25	0.21	0.11	0.27	0.00	0.38	1.00	-0.19	0.05	0.31	0.44
NZL	0.50	0.29	-0.27	0.20	-0.05	0.03	-0.03	-0.19	1.00	-0.15	-0.14	-0.29
Philippines	-0.27	-0.44	0.07	0.11	0.07	0.00	0.03	0.05	-0.15	1.00	-0.15	0.15
Singapore	-0.15	-0.09	0.55	-0.11	0.26	0.33	0.45	0.31	-0.14	-0.15	1.00	0.27
Thailand	-0.26	-0.14	0.48	0.06	0.14	0.20	0.63	0.44	-0.29	0.15	0.27	1.00

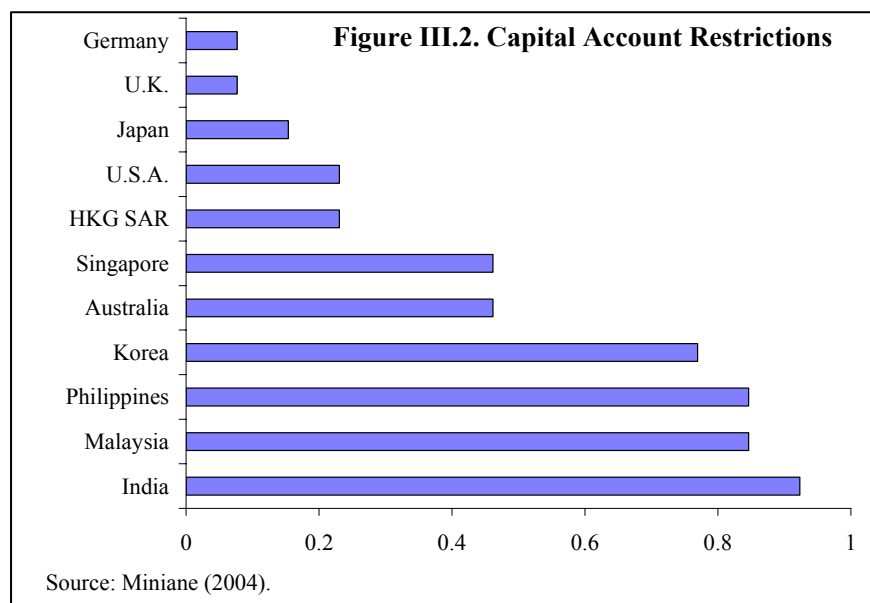
Source: World Bank (World Development Indicators) and staff estimates.

55. **Restrictions on capital account transactions are still high in Asia, especially compared with countries in the European Union.** These restrictions may partially explain the lack of international diversification (Figure III.2 presents an index summarizing capital account restrictions as recorded by the IMF. The more restrictions, the higher the index).²³

56. **Asian countries would gain from greater financial diversification. But the question is how much would they gain.** Estimates of the gains for developed countries vary.²⁴ But gains for emerging markets are typically higher than for developed economies (Obstfeld, 1995; Kose, 1997). First, emerging markets economies tend to be more volatile, and there is therefore more scope to reduce volatility. Second, emerging markets tend to be less diversified internationally than their developed counterparts, and hence are more likely to be further from an optimal degree of diversification.

²³ Restrictions in Australia include regulations on real estate and direct investments, (the IMF's Annual Exchange Arrangements and Exchange Restrictions details these restrictions).

²⁴ See van Wincoop (1999), Lewis (2000), and Sill (2001) for a survey of the literature.



B. Estimation Strategy and Data

57. **Gains from diversification are estimated from the point of view of a financial investor, as is done in the finance literature.** The investor can invest in domestic and foreign assets. Her utility under autarky (where she can invest in the domestic asset only) is then compared to her utility holding a portfolio that is fully diversified internationally. The improvement in utility measures the welfare gains of financial diversification. Annex III.1 presents the methodology in greater detail.

58. **The analysis is conducted for 13 emerging and developed economies of the Asia-Pacific region:** Australia, China, Hong Kong SAR, India, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Taiwan Province of China, and Thailand.

59. **Data on asset returns are needed to estimate the gains. These data are readily available for equity, but not for other types of investment such as FDI. The study therefore focuses on equity returns.** In so far as different types of assets are substitutes, returns on equity are a reasonable proxy for returns on other types of capital. Data include annual observations from 1988 to 2003. Data for Australia, Hong Kong SAR, Japan, and Singapore are available starting 1970. All returns are expressed in real terms. Annex III.2 describes data sources and construction.

60. **Gains from diversification are estimated for three scenarios: financial integration within emerging Asia; financial integration in Asia as a whole; and financial integration with the whole world.** In these scenarios, the investor can diversify by investing in a stock index for emerging Asia; or in an Asia index; or in a world index. Economies with longer data coverage (Australia, Hong Kong SAR, Japan, and Singapore) are treated separately to take advantage of these additional data. For each of these economies, a stock index is created using a weighted average of stock returns from the other countries with long data coverage. This index, called "Asia3", is a proxy for returns in the Asia-Pacific region.

For Australia, Hong Kong SAR, and Singapore, the benefits of financial integration with Japan—the largest economy in the region—are also estimated.

C. Results for Australia

61. **Table III.2 presents the stochastic properties of stocks returns for an Australian investor.** Returns on Australian stocks are not perfectly correlated with returns on foreign indexes, confirming that there is room for risk-sharing between Australia and other nations. Returns on the world, Japanese, and Asia3 indexes are all higher than returns on the Australian index, but the Japanese and Asian indexes are also more volatile. Strikingly, the world stock index “dominates” the Australian index in that it offered both higher returns and lower risk.

	Mean	Stand. Dev.	Correlation
Australia	7.0	24.6	1
World	7.2	20.8	0.73
Rest of World	7.3	20.8	0.72
Japan	10.4	33.6	0.47
Asia3	10.8	33.5	0.49

(Japan, Singapore, Hong Kong SAR)
Source: Morgan Stanley and staff estimates.

62. **Tables III.3 to III.5 present the optimal share of foreign assets in the portfolio of the Australian investor, as well as the associated welfare gains from diversification.**²⁵ The results are given for a set of plausible values for relative risk aversion γ and for intertemporal elasticity of substitution $1/\theta$, as discussed by Lewis (2000). As expected, welfare gains from diversification increase with risk aversion—the more risk averse, the greater the gains from reducing risk—and decrease with intertemporal elasticity of substitution. As utility decreases exponentially with risk-aversion, welfare gains from diversification increase exponentially as risk-aversion rises. Gains are therefore sensitive to changes in the parameters. For example, they range from 4.4 to several hundred percent in the case of financial integration with the rest of the world. Gains are nonetheless high, on average. Moreover, the optimal share of foreign equities in the portfolio of an Australian investor is always high. For example, the optimal share of world equity is above 80 percent for an Australian investor regardless of the assumptions made on the parameters. By comparison, the Australian equity portfolio currently includes only 16 percent of foreign stocks.

²⁵ Utility is not defined for portfolios that are too risky, particularly when combined with a low elasticity of substitution (i.e., a large θ). When utility under autarky is not defined, it is not possible to compute the welfare gains, which are reported as “n/a” in the tables. In some cases, the utility is not defined for any portfolio (that is, for any share of foreign assets) and the optimal portfolio is entered as “n/a” as well.

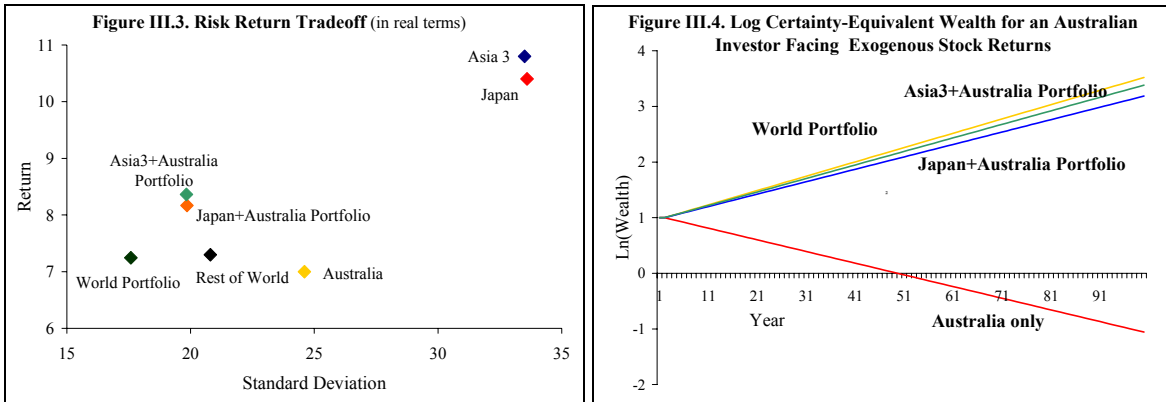
Table III.3. Australia: Welfare Gains from Financial Integration with Japan				
Optimal Share				
	$\theta=2$	3	4	5
$\gamma=1$	0.58	0.58	0.58	0.58
2	0.40	0.40	0.40	0.40
3	0.34	0.34	0.34	0.34
4	0.31	n/a	n/a	n/a
Welfare Gains (in percent)				
1	17.0	10.9	7.9	6.1
2	24.7	19.3	15.8	13.3
3	54.4	110.5	n/a	n/a
4	9276.8	n/a	n/a	n/a

Table III.4. Australia: Welfare Gains from Financial Integration with Asia³				
Optimal Share				
	$\theta=2$	3	4	5
$\gamma=1$	0.64	0.64	0.64	0.64
2	0.43	0.43	0.43	0.43
3	0.36	0.36	0.36	0.36
4	0.32	n/a	n/a	n/a
Welfare Gains (in percent)				
1	19.3	12.3	8.9	6.9
2	26.6	20.6	16.8	14.1
3	56.8	113.9	n/a	n/a
4	9478.5	n/a	n/a	n/a

Table III.5. Australia: Welfare Gains from Financial Integration with the World				
Optimal Share				
	$\theta=2$	3	4	5
$\gamma=1$	0.87	0.87	0.87	0.87
2	0.83	0.83	0.83	0.83
3	0.82	0.82	0.82	0.82
4	0.81	0.81	0.81	0.81
Welfare Gains (in percent)				
1	11.9	7.8	5.7	4.4
2	32.6	24.7	19.9	16.6
3	95.3	164.0	n/a	n/a
4	19102.3	n/a	n/a	n/a

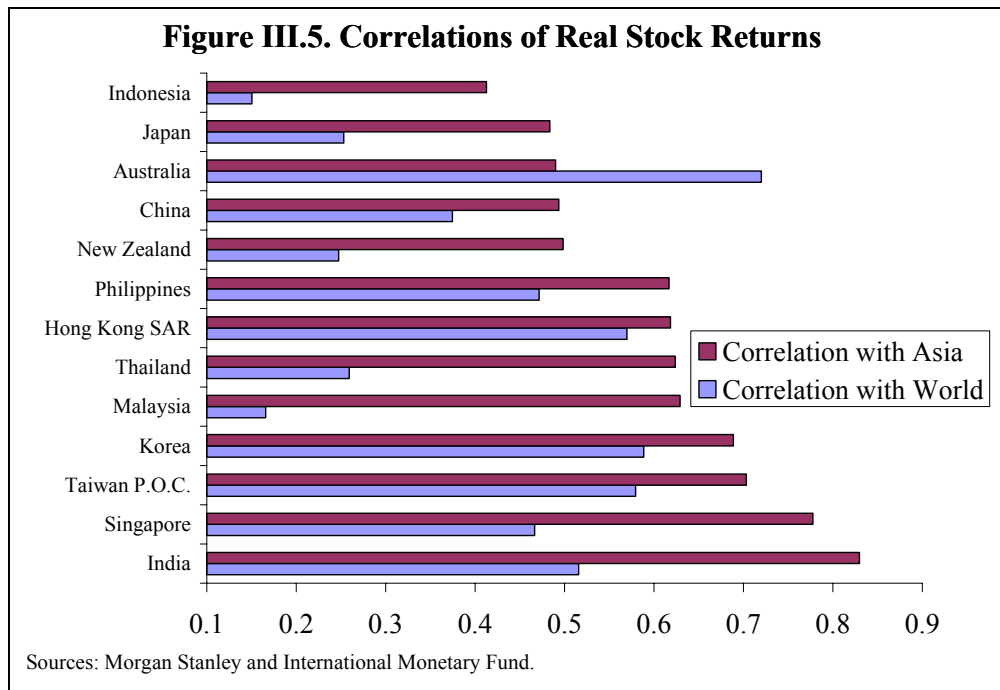
63. **Figures III.3 and III.4 further illustrate the gains from diversification for Australia.**²⁶ Figure III.3 shows the risk-return trade-off an Australian investor faces. It makes clear that diversifying allows the investor to enjoy both lower risk and higher returns. Figure III.4 shows the certainty-equivalent path of an investor's wealth under the various scenarios discussed. The certainty-equivalent wealth of an Australian investor would decrease over time under autarky. If she is allowed to diversify into foreign assets, however, her certainty-equivalent wealth grows over time.

²⁶ Figures III.3 and III.4 correspond to parameters $\gamma=\theta=3$.

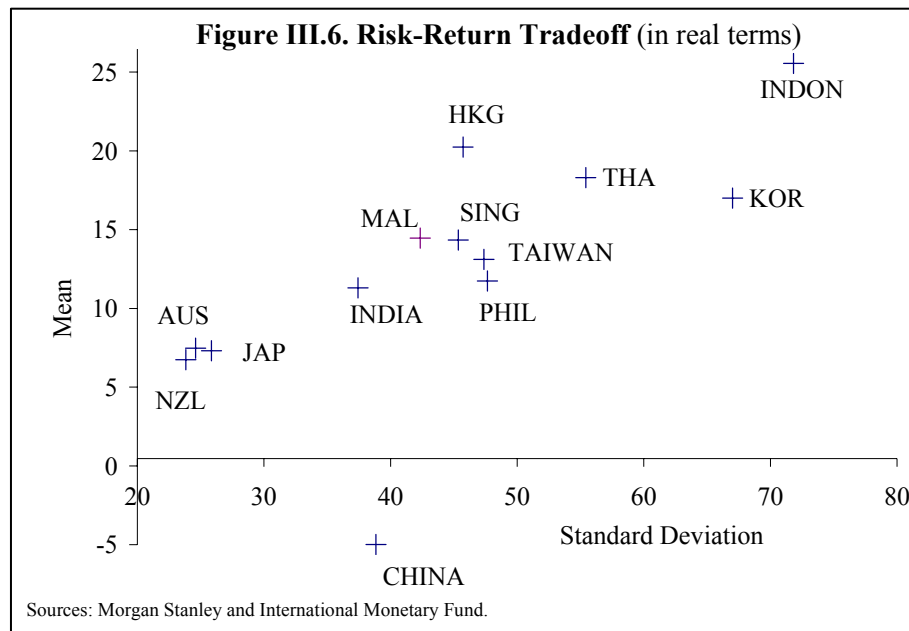


D. Results for Other Economies

64. **The chapter estimates the gains from financial integration for other economies in the Asia/Pacific region.** Figure III.5 summarizes the correlation of each country's returns with the emerging Asia, Asia, and world indexes. Correlations with the world index tend to be lower than with the Asian indexes, reflecting the fact that Asian economies are more correlated with each other than they are with the rest of the world. Lower correlations offer more opportunity for risk-sharing. Moreover, the world index is less volatile than the Asian indices. It is therefore unsurprising that the welfare gains from worldwide financial integration are greater than the gains from integration within Asia for all countries in the sample (Table III.6).



65. **Stock markets of most Asian countries in the sample display the stochastic properties typical of emerging markets:** high average returns, but high risk. An interesting exception is China: while its stocks are risky, their average return is also low—indeed, the average return is negative (-5.5 percent).²⁷ China would therefore gain tremendously from financial integration, since it would be able to swap its high risk and negative return assets against lower risk and higher returns ones; indeed, it might be optimal for a Chinese investor to hold his or her entire wealth in foreign equity. Overall, the high level of risk in emerging economies translates into high gains from financial integration (Table III.6).²⁸ These gains are higher than the gains usually found in the literature for developed countries, as discussed previously. Developed economies would nonetheless gain as well from integration with emerging markets, as they would still be able to diversify some of their risk away and would also benefit from the higher returns in these economies.



²⁷ The progressive privatization of some state-owned companies partially explains the low returns on Chinese stocks. The authorities sold some of their large holdings in these companies, putting downward pressure on stock prices.

²⁸ Because gains cannot be computed for some values of the parameters, parameters used in Table III.6 vary across countries.

Table III.6. Welfare Gains from Financial Integration					
China ($\gamma=3, \theta=3$)					
	<u>Returns</u>				
	Mean	St. Dev.	Correlation	Optimal	Gains
China	-5.5	38.8	1.00	Share	(in percent)
World	8.5	18.8	0.37	1.00	n/a
Emerging Asia	7.2	43.2	0.66	0.71	n/a
Asia	3.7	32.2	0.49	0.91	n/a
Hong Kong SAR ($\gamma=1, \theta=3$)					
	<u>Returns</u>				
	Mean	St. Dev.	Correlation	Optimal	Gains
Hong Kong SAR	19.8	45.7	1.00	Share	(in percent)
World	7.0	17.4	0.57	0.24	0.8
Asia3 (Australia, Japan, Singapore)	10.6	32.5	0.62	0.19	0.4
India ($\gamma=1, \theta=2$)					
	<u>Returns</u>				
	Mean	St. Dev.	Correlation	Optimal	Gains
India	10.8	37.4	1.00	Share	(in percent)
World	8.9	18.0	0.52	0.84	37.8
Emerging Asia	9.0	47.7	0.73	0.00	0.0
Asia	4.3	30.0	0.83	0.00	0.0
Indonesia ($\gamma=1, \theta=3$)					
	<u>Returns</u>				
	Mean	St. Dev.	Correlation	Optimal	Gains
Indonesia	25.1	71.8	1.00	Share	(in percent)
World	13.3	44.4	0.15	0.57	141.0
Emerging Asia	12.5	39.5	0.57	0.66	116.2
Asia	4.5	36.3	0.41	0.47	84.5
Japan ($\gamma=2, \theta=2$)					
	<u>Returns</u>				
	Mean	St. Dev.	Correlation	Optimal	Gains
Japan	6.8	25.9	1.00	Share	(in percent)
World	4.8	17.9	0.45	0.63	40.8
Rest of World	5.5	20.1	0.25	0.58	49.8
Asia3 (Australia, Singapore, Hong Kong SAR)	7.8	24.7	0.48	0.62	45.8
Korea ($\gamma=3, \theta=2$)					
	<u>Returns</u>				
	Mean	St. Dev.	Correlation	Optimal	Gains
Korea	16.5	67.0	1.00	Share	(in percent)
World	7.4	22.4	0.59	1.00	n/a
Emerging Asia	9.1	34.9	0.41	0.87	n/a
Asia	0.3	24.0	0.69	1.00	n/a

Table III.6. Welfare Gains from Financial Integration (continued)						
Malaysia ($\gamma=1, \theta=2$)	<u>Returns</u>					
		Mean	St. Dev.	Correlation	Optimal	Gains
					Share	(in percent)
	Malaysia	14.0	42.3	1.00		
	World	10.3	22.6	0.17	0.64	36.8
Emerging Asia	12.6	38.3	0.91	0.59	5.2	
Asia	3.8	28.1	0.63	0.02	0.0	
New Zealand ($\gamma=3, \theta=3$)	<u>Returns</u>					
		Mean	St. Dev.	Correlation	Optimal	Gains
					Share	(in percent)
	NZL	6.3	23.8	1.00		
	World	6.6	19.2	0.25	0.67	39.3
Emerging Asia	9.6	39.0	0.68	0.13	2.0	
Asia	0.1	25.4	0.50	0.00	0.0	
Philippines ($\gamma=1, \theta=3$)	<u>Returns</u>					
		Mean	St. Dev.	Correlation	Optimal	Gains
					Share	(in percent)
	Philippines	11.3	47.7	1.00		
	World	8.4	20.5	0.47	0.86	84.8
Emerging Asia	10.7	37.1	0.79	0.97	57.7	
Asia	1.9	26.0	0.62	0.40	19.8	
Singapore ($\gamma=1, \theta=3$)	<u>Returns</u>					
		Mean	St. Dev.	Correlation	Optimal	Gains
					Share	(in percent)
	Singapore	13.9	45.3	1.00		
	World	7.5	20.3	0.47	0.62	20.6
Asia3	11.1	32.7	0.78	0.77	16.6	
(Australia, Japan, Hong Kong SAR)						
Taiwan P.O.C. ($\gamma=1, \theta=3$)	<u>Returns</u>					
		Mean	St. Dev.	Correlation	Optimal	Gains
					Share	(in percent)
	Taiwan P.O.C.	12.6	47.4	1.00		
	World	6.8	17.0	0.58	0.74	42.1
Emerging Asia	10.2	38.6	0.75	0.63	21.2	
Asia	1.0	27.2	0.70	0.15	1.5	
Thailand ($\gamma=1, \theta=3$)	<u>Returns</u>					
		Mean	St. Dev.	Correlation	Optimal	Gains
					Share	(in percent)
	Thailand	17.8	55.4	1.00		
	World	8.9	19.6	0.26	0.66	45.0
Emerging Asia	11.0	35.9	0.86	0.73	20.2	
Asia	2.1	24.3	0.62	0.33	9.6	

E. Discussion

66. **It is important to understand how some of the simplifying assumptions might affect the estimated welfare gains from diversification.** Some assumptions tend to overstate the gains from diversification. First, utility with an fully diversified portfolio is compared with utility under autarky. In practice, countries have already achieved some degree of diversification, reducing the benefits of switching to their optimal portfolio. Second, many companies listed in a domestic stock market have overseas operations. Holding stocks of these companies therefore entails an element of international diversification. Treating the corresponding stocks as purely domestic assets understates the degree of diversification already achieved, and hence overstates the benefits of further diversification. Third, countries also produce non-tradable goods. Domestic assets can help hedging the risk in nontradable output, reducing the optimal level of international diversification. Pesenti *et al.* (2002) show, however, that nontradables have only a small impact on this optimal level. Finally, historical data are not always an accurate proxy for expectations of future means and variances. If so, the future gains of financial integration would differ from the estimated gains based on historical data.

67. **But some assumptions also tend to understate the gains from diversification. In the above exercise, the investor can only buy one foreign assets.** In reality, she could cherry-pick the stocks that are most valuable to her, increasing her gains from diversification. The assumption that asset prices are exogenous might also understate the gains from financial integration, as Lewis (2000) argues. Asset prices are endogenous and they would change when international investors start purchasing these assets. This change in domestic asset prices affects the wealth of the countries. This transfer of wealth allows substituting consumption intertemporally from low-growth economies to high-growth economies, leaving all countries better-off: high growth countries gain because they substitute future consumption for current consumption; low growth countries gain because they will get a slice of the high growth. In short, endogenous adjustment in asset prices allows for an extra avenue of welfare gains that is not present when stock prices are treated as exogenous.

68. **What are the benefits of risk-sharing for the country?** Benefits include the following:

- Holding foreign assets could reduce the volatility of households' consumption.
- Investing abroad would also reduce the volatility of companies' earnings.
- Turning to foreign shareholders could reduce the cost of raising capital as well. For example, a foreign company importing iron ore is subject to fluctuations in iron ore world prices. To invest in an Australian mining company would reduce the risk the foreign company faces: when iron ore prices are high, it also receives higher dividends from its investment in the Australian mining company. The foreign company benefits from such a reduction of risk. This foreign company would therefore be ready to pay more for a stake in an Australian mining company than an Australian investor, since the mining stock would yield less risk-hedging benefits to the Australian investor. For the Australian

mining company, the special interest of the foreign company means a lower cost of raising capital.

- Finally, international risk-sharing may boost GDP growth, because investors are more willing to invest in high risk/high return projects if they can diversify away the risk (Obstfeld, 1994b).

69. What are the policy implications of these unrealized gains from risk-sharing?

The results suggest that Australia and Asian countries could benefit significantly from enhanced financial integration, both within the region and with the rest of the world. The question is then why these countries have not already integrated more. Capital controls are probably part of the answer. But the persistent “home bias” among industrial countries, which have mostly open capital accounts, suggests that other forces must be at play. Figures III.1 and III.2 nonetheless stress that there is a correlation between capital account openness and international diversification. Lifting restrictions on capital account transactions would therefore promote financial integration. Of course, it is essential that financial systems and prudential regulation be sufficiently strong and that liberalization be done progressively to avoid instability. In addition, a significant degree of integration can be achieved only if all countries liberalize. In particular, a country cannot diversify successfully if it does not allow foreign investors in. The reason is that the country simply cannot afford purchasing large amounts of foreign assets if it does not sell some of its domestic assets. An orderly financial liberalization across the region would probably boost financial integration and the associated benefits from risk-sharing.

Estimation Methodology

This chapter follows the methodology developed by Lewis (2000). Calculating the gains requires specifying a utility function. A constant relative risk aversion utility function is often used in the literature. But this function assumes that the coefficient of relative risk aversion is the inverse of the intertemporal elasticity of substitution coefficient. However, Obstfeld (1994a) shows that these two coefficients have opposite effects upon welfare gains. Not imposing a constraint on these coefficients therefore allows assessing the sensitivity of the results to assumptions on these coefficients. As in the finance literature, Lewis assumes that utility depends upon wealth:

$$U_t = \left\{ W_t^{1-\theta} + \beta \left[E_t \left(U_{t+1}^{1-\gamma} \right) \right]^{(1-\theta)/(1-\gamma)} \right\}^{1/(1-\theta)}, \quad (1)$$

where

γ : relative risk aversion,

$1/\theta$: intertemporal elasticity of substitution in consumption,

β : subjective discount factor,

and W_t : wealth (i.e., the portfolio of assets held by the investor).

The evolution of wealth is given by $W_{t+1} = R_{t+1}W_t$, where R_{t+1} is the return on the portfolio. μ and σ are the returns' mean and standard deviation, respectively.

Assuming that wealth is log-normally distributed, Lewis (2000) shows that the investor's utility is equal to the following:

$$U_0 = W_0 \left\{ 1 - \beta \exp \left[(1-\theta) \left(\mu - \frac{1}{2} \gamma \sigma^2 \right) \right] \right\}^{-1/(1-\theta)} \quad (2)$$

Equation (2) makes clear that utility depends on the risk/return tradeoff the investor faces. More precisely, her utility is increasing in the certainty equivalent log wealth growth path, $\mu - \frac{1}{2} \gamma \sigma^2$. Higher returns increase the investor's welfare, while more volatile returns reduce it. The more risk-averse the investor, the higher the return needed to compensate the investor for taking risk.

To simplify, the investor is assumed to have the choice between two assets: one domestic, one foreign. ϕ is the share of foreign assets in her portfolio. The mean μ and variance σ^2 of the portfolio depend on this share, so the investor's utility therefore depends on ϕ : $U_0 = U_0(\phi)$. The optimal degree of international diversification is the share of foreign assets

φ^* that maximizes this utility. φ^* is computed using numerical methods described below. The welfare gains from diversification are then given by:

$$\text{Welfare Gains} = \frac{U_0(\varphi^*)}{U_0(0)} - 1 \quad (3)$$

Replacing the utility function by its expression and rearranging the terms yields the following equation:

$$\text{Welfare Gains} = \left\{ \frac{1 - \beta \exp \left[(1 - \theta) \left(\mu^* - \frac{1}{2} \gamma \sigma^{*2} \right) \right]}{1 - \beta \exp \left[(1 - \theta) \left(\mu_0 - \frac{1}{2} \gamma \sigma_0^2 \right) \right]} \right\}^{-1/(1-\theta)} - 1, \quad (4)$$

where (μ^*, σ^{*2}) and (μ_0, σ_0^2) are the mean and variance of returns on wealth under autarky and under an optimally diversified portfolio, respectively.

The optimal share of foreign assets, φ^* , is computed using a grid search algorithm with 1000 increments. For each share of foreign assets, the mean and variance of the corresponding portfolio's returns are calculated. The mean and variance are then plugged into equation (4). The share of foreign assets which yields the highest welfare gains is the optimal degree of international diversification.

Gains from diversification come from two sources, as equations (2) and (4) illustrate. Investing in foreign assets can reduce the volatility of the portfolio returns; it may also increase their mean.

Data Sources and Construction

The data for the stock market are the country and region indexes from Morgan Stanley (MSCI) with gross dividends reinvested. The series are converted to real terms by deflating them with the consumer price index (from the IMF's *International Financial Statistics*) and population (from the World Bank's World Development Indicators).

An "Asia3" index is constructed for the four countries with longer data coverage (Australia, Hong Kong S.A.R., Japan, and Singapore). For each of this country, the "Asia3" index is created using a GDP weighted average of stock returns from the other three countries (the weights are the countries' 2003 GDP expressed in U.S. dollars).

The subjective discount factor β is set to 0.95 for all simulations. Results are robust to small changes in β .

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