

South Africa: Selected Issues

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SOUTH AFRICA

Selected Issues

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Approved by African Department

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South Africa: Basic Data

Area	1,219 million square kilometers
Population (2002)	45.3 million
Population growth rate (2002)	2.0 percent
Employment (2003)	11.6 million
IMF Position (July 19, 2004)	
Quota	SDR 1,868.5 million
Fund holdings of rand	SDR 1,868.0 million
Holdings of SDRs	SDR 222.8 million
Exchange rate (end July 2004)	US\$1 = R 6.19

	1997	1998	1999	2000	2001	2002	2003
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(Annual percent change, unless otherwise specified)

National accounts							
Real GDP	2.6	0.8	2.0	3.5	2.7	3.6	1.9
Real GDP per capita	0.4	-1.4	-0.2	2.0	0.7	1.5	-0.3
Nominal GDP (billions of rand)	685.7	739	801	888	983	1,121	1,209
Nominal GDP per capita (U.S. dollars)	3,610	3,173	3,043	2,932	2,565	2,345	3,444
External sector							
Merchandise exports, f.o.b. 1/	3.0	-6.7	-1.6	11.4	-2.9	1.6	22.8
Merchandise imports, f.o.b. 1/	4.6	-5.7	-10.0	11.4	-5.5	4.1	30.3
Real exports of goods and services	5.6	2.7	1.7	8.9	2.7	-0.8	-0.5
Real imports of goods and services	5.4	1.7	-7.5	7.1	0.2	3.4	9.7
Terms of trade	-1.2	-1.1	-3.0	-1.9	0.1	2.4	4.6
Nominal effective exchange rate 2/	0.2	-12.9	-10.9	-5.9	-15.0	-21.7	25.1
Real effective exchange rate 2/	6.6	-9.4	-5.8	-1.3	-8.9	-9.9	25.0
Money and credit							
Broad money (M3)	17.2	14.6	10.1	7.5	17.3	17.2	12.3
Bank rate/repurchase rate (period end, in percent)	16.0	19.3	12.0	12.0	9.5	13.5	8.0
GDP deflator	8.1	7.0	6.2	7.2	7.8	10.1	5.9
CPI (annual average)	8.6	6.9	5.2	5.4	5.7	9.2	5.8

(In percent of GDP)

Investment and saving							
Investment (including inventories)	16.5	16.6	15.7	15.5	14.6	15.9	16.8
Gross national saving	15.1	14.9	15.3	15.3	14.6	16.5	15.9
Foreign saving	1.5	1.7	0.4	0.2	0.0	-0.6	0.8
Government finances 3/							
National government							
Revenue, including grants	23.3	24.2	24.3	23.7	24.3	24.3	24.4
Expenditure and net lending	27.2	26.9	26.3	25.7	25.9	25.5	26.5
Overall balance 4/	-3.9	-2.6	-2.0	-2.0	-1.6	-1.2	-2.1
National government debt	47.0	48.2	47.0	44.4	43.0	38.5	37.3
General government balance	-4.3	-2.6	-1.6	-1.6	-1.2	-1.2	-2.1
PSBR of the nonfinancial public sector 5/	4.3	3.7	2.0	1.1	0.8	0.7	2.1

(In billions of U.S. dollars; unless otherwise specified)

External sector							
Current account balance	-2.2	-2.3	-0.5	-0.3	0.1	0.6	-1.3
Foreign currency-denominated debt	25.2	25.0	23.9	24.9	24.0	25.0	27.3
<i>Of which:</i> short term	14.1	14.5	13.5	12.9	11.2	11.2	12.0
Total external debt / exports of goods and services (in percent) 6/	107.1	108.7	114.7	99.7	86.4	90.4	82.0
Interest payments of debt	3.0	3.0	3.0	2.4	2.2	2.3	2.3
Overall balance of payments	1.6	-0.5	3.3	0.6	0.9	3.2	4.7
Net official reserves	3.8	2.3	4.3	4.9	6.5	6.7	7.1
(in months of total imports)	1.3	0.8	1.7	1.8	2.5	2.5	2.0
(in percent of short-term foreign currency debt)	27.1	16.0	32.0	38.3	57.7	59.7	59.3
International liquidity position of SARB (in billions of U.S. dollars) 7/	-16.3	-22.5	-13.0	-9.5	-4.8	-1.6	4.8

Sources: South African Reserve Bank (SARB); World Bank, *World Development Indicators*; IMF, *International Financial Statistics*; and IMF staff estimates.

1/ In U.S. dollars; annual percent change.

2/ Annual average; Information Notice System (INS) definition.

3/ Fiscal year beginning April 1.

4/ Excludes sales of state assets and the profit/losses from forward market operations of the Reserve Bank.

5/ Excludes sales of state assets but including the profit/losses from forward market operations of the Reserve Bank.

6/ Excluding rand-denominated debt held by nonresidents; end of period.

7/ Up to end of February 2004 referred to as net open position in foreign currency of SARB (NOFP), defined as net international reserves (gross reserves minus foreign loans) less net forward foreign exchange liabilities of SARB.

I. HIV/AIDS IN SOUTH AFRICA¹

A. Introduction

1. The emergence of the HIV/AIDS epidemic—and its substantial human and economic repercussions—is one of the most significant developments of South Africa’s post-apartheid period. Two thousand South Africans contract the disease each day, and the most recent official estimates of the National Department of Health place the number of HIV-positive people at the end of 2002 at 5.4 million, or over 12 percent of the total population. Nearly one-quarter of adults aged 15–49 are estimated to be infected.² Some 400–500,000 South Africans have AIDS, the most severe stage of HIV infection. The disease claims 800–1,300 lives each day, accounting for 30 percent of all deaths and 40 percent of deaths of adults aged 15–49. The accumulated number of AIDS deaths up to 2004 has been estimated by Statistics South Africa at nearly 1.5 million. Average life expectancy has fallen sharply, from 64 years in 1994 to 49 years in 2001. A growing number of AIDS orphans, estimated by the UN at nearly 700,000 in 2001, is placing strains on extended families, communities, and public services.

2. HIV/AIDS is also having a wide range of direct and indirect economic costs on households, businesses, and the state. These costs include health care and funeral expenses, lower productivity and absenteeism, and additional recruitment and training expenditures. Tentative estimates indicate that one-fourth of public health spending is related to HIV/AIDS. In late 2003, the government approved a complex program to provide anti-retroviral drug treatments (ARVs) to the population through the public health system.

3. The severe impact of HIV/AIDS is likely to continue, and the total number of deaths related to the disease could reach 5–7 million by 2010, or 10–15 percent of today’s population. Studies of potential economic impacts indicate negative prospects for output, inflation and income distribution, and some researchers project catastrophic impacts. While the provision of ARVs through the public health system will be a very significant administrative challenge, these treatments offer prospects to mitigate some of the most severe effects of the disease.

4. This paper reviews the status and potential impacts of HIV/AIDS in South Africa, draws on demographic projections and economic studies, and summarizes the official policy response and actions taken by the nongovernmental and business communities.

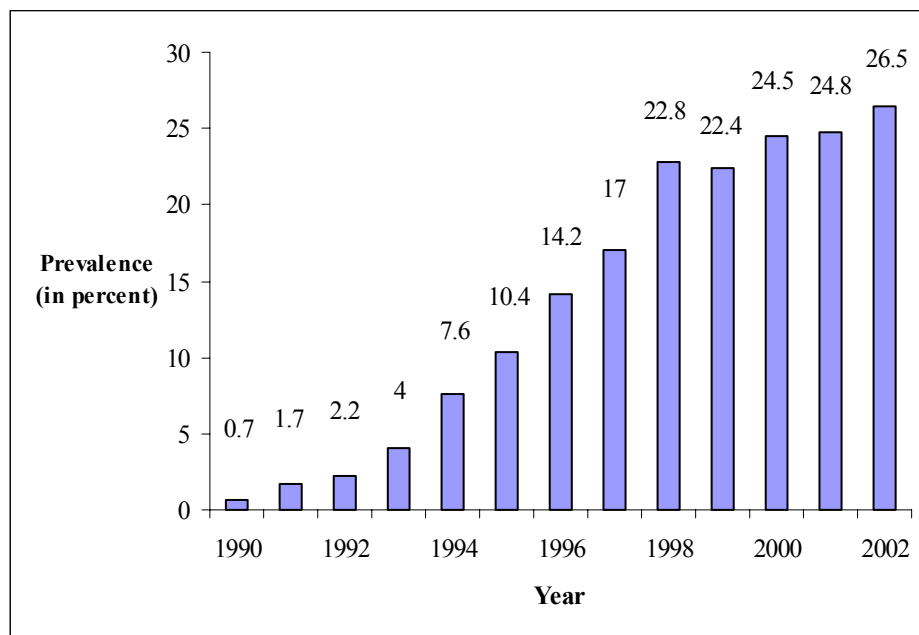
¹ Prepared by Mark Horton.

² Population estimates of Statistics South Africa, released in July 2004 and based on a separate set of demographic assumptions, place the number of South Africans with HIV at 3.8 million, corresponding to 15.2 percent of the adult population.

B. HIV/AIDS Prevalence, Incidence, and Risk

5. HIV prevalence rates increased sharply in South Africa during the 1990s and have continued to increase in recent years (Figure I.1). National prevalence estimates are based on annual Department of Health surveys of pregnant women attending public health clinics, with extrapolation to other population groups, including men.³ The most recent survey, conducted in October 2002, found that 26.5 percent of pregnant women were HIV-positive, compared with 24.8 percent in 2001. Prevalence rates continue to rise for most age groups, although rates among 15-19 year-old women appear to have declined slightly in recent years, possibly reflecting increased HIV/AIDS awareness and changing behavior patterns (Table I.1). While the number of new infections appears to have peaked in 1998-99 at 900,000 new cases per year, prevalence is expected to increase until 2006, when the number of new HIV infections is eclipsed by the number of AIDS deaths.

Figure I.1. South Africa. HIV Prevalence Rates Among Antenatal Clinic Attendees



Sources: National Department of Health, 2003; and National HIV and Syphilis Antenatal Sero-Prevalence Survey in South Africa, 2002.

³ Other surveys are conducted, for example, in the armed forces and among the prison population. Compulsory testing is not permitted under South African law, and some wider population surveys have suffered from sample bias problems.

Table I.1. South Africa—Prevalence of HIV Among Antenatal Clinic Attendees, by Age Group, 2000-02 (with 95 percent confidence intervals)

Age Group	2000	2001	2002
Under 20	16.1 (14.5 – 17.7)	15.4 (13.8 – 16.9)	14.8 (13.4 – 16.1)
20-24	29.1 (27.4 – 30.8)	28.4 (26.5 – 30.2)	29.1 (27.5 – 30.6)
25-29	30.6 (28.8 – 32.4)	31.4 (29.5 – 33.3)	34.5 (32.6 – 36.4)
30-34	23.3 (21.5 – 25.1)	25.6 (23.5 – 27.7)	29.5 (27.4 – 31.6)
35-39	15.8 (13.9 – 17.7)	19.3 (17.0 – 21.5)	19.8 (17.5 – 22.0)
40+	11.0 (7.9 – 14.2)	9.8 (7.0 – 12.6)	17.2 (13.5 – 20.9)
All groups	24.5 (23.4 – 25.6)	24.8 (23.6 – 26.1)	26.5 (25.5 – 27.6)

Source: National Department of Health, 2003; and National HIV and Syphilis Antenatal Sero-Prevalence Survey in South Africa: 2002.

6. Demographers and public health specialists have suggested that the rapid spread of HIV/AIDS in South Africa has reflected behavioral and socioeconomic conditions, as well as a high degree of population mobility. Key factors include mass resettlement to homelands and urban townships during apartheid, travel along major trade routes made easy by South Africa's excellent infrastructure, the arrival of refugees from other parts of Africa, and the return after 1990 of exiles and combatants from liberation armies.⁴ Migrant labor and living arrangements, which are common in urban areas and mining districts in South Africa, are also thought to have contributed to the rapid spread of HIV/AIDS.

7. HIV prevalence rates in South Africa are strongly correlated with gender, employment, income, education, and race. Prevalence rates are lowest among whites and Asians, slightly higher among coloreds, and highest among blacks, including when controlling for socioeconomic differences.⁵ Women have higher prevalence than men, due to biological and socioeconomic factors (income, employment, education), and they tend to become infected at an earlier age. Lower socioeconomic status is linked to lower HIV/AIDS awareness, higher-risk sexual behavior, a greater prevalence of sexual violence, and a greater

⁴ Demographers believe that the epidemic may have started later in South Africa than in neighboring countries, where prevalence rates are considerably higher or have stabilized or decreased in recent years, reflecting higher AIDS mortality. In Botswana and Swaziland, prevalence rates among pregnant women attending public clinics were nearly 40 percent in 2002, and prevalence rates in Lesotho exceeded 30 percent.

⁵ Johnson and Budlender (2002) present data indicating that the odds of HIV infection for black South Africans is 4.3 times higher than for South Africans of Asian descent with similar levels of education, 5.9 times higher than for coloreds, and 7.7 times higher than for whites.

likelihood of economic distress and migration. A further factor is greater prevalence of other sexually transmitted diseases (STDs), which increase the likelihood of HIV infection.

8. HIV prevalence rates also vary geographically. Prevalence is generally lower in rural areas, reflecting social norms and greater isolation. However, HIV awareness, condom use and treatment of STDs are also lower in rural areas, suggesting vulnerability to the spread of the disease. Prevalence rates also vary considerably among the nine provinces, with rates in the worst-affected areas (KwaZulu-Natal and Gauteng) more than twice as high as in the least-affected provinces (Western Cape, Northern Cape, and Limpopo). This may reflect demographic variation (e.g., provincial racial composition, degree of urbanization, extent of rural poverty), specific factors such as the location of key trucking routes or ports, or different relative stages of exposure and progression of HIV/AIDS.

9. Prevalence rates also vary substantially among skill levels, occupations and industries. Rates are highest among the unemployed and low-skilled workers and lowest among white-collar employees. According to some estimates, semi-skilled black employees are 50 percent more likely to have HIV than skilled black workers and 3.3 times more likely than black managers; semi-skilled white employees are twice as likely to have HIV than skilled white workers or white managers. Prevalence rates are high among professions that typically involve long separations from families and greater proximity to commercial sex workers, such as for migrant mine workers, truck drivers, and soldiers. Rates are lowest in sectors such as finance, telecommunications, and technology.

C. Demographic Projections

10. Demographics projections suggest potentially devastating impacts from AIDS over the next two decades, in terms of mortality, life expectancy, and the generation of a sizeable population of orphans. These effects may be mitigated to some extent by the provision of ARV drug treatments. Projections of demographic impacts are generally based on two models, one prepared by the Actuarial Society of South Africa (ASSA) and a second maintained by the Metropolitan Life Insurance company.⁶ Both models project progression of the epidemic through an interaction of four population risk groups and assumptions about sexual behavior, rates of infection, fertility and mother-to-child transmission, and the median duration to mortality of those with HIV/AIDS.

11. Current ASSA projections incorporate a baseline and an alternative scenario, the latter involving lower mother-to-child HIV transmission due to provision of drug treatments at the time of birth and during nursing, enhanced treatment of STDs, and lower-risk behavioral patterns. Neither scenario incorporates the provision of ARVs. In the baseline scenario, HIV prevalence peaks at 16.2 percent of the population in 2006, as compared with

⁶ The ASSA model is available to researchers at <http://www.assa.org.za>, while the Metropolitan Life Insurance model is proprietary.

12 percent in 2002. AIDS deaths overtake all other causes of death in 2004, and peak in 2011 at 800,000, or 1,650 deaths per 100,000, compared with 600 per 100,000 in 2002. The number of total AIDS and non-AIDS deaths are projected to exceed births during 2007–25, causing South Africa's population to decline by 0.2 percent per year. By 2015, AIDS would have claimed 9 million lives, and accounting for potential offspring, the population would be 10 million less than in the absence of AIDS. Average life expectancy at birth would have declined from 49 years in 2001 to 41 years by 2015. By 2025, 15 million South Africans would have died from AIDS. The ASSA model projects the number of AIDS maternal orphans to grow continuously, reaching 1.85 million in 2015, or 15 percent of children under the age of 15.

12. The modest policy and behavioral changes assumed in the second ASSA scenario would lead HIV prevalence in the population to peak earlier and at a lower rate, 14.9 percent in 2004-05. The number of AIDS deaths would peak in 2010 at 713,000, or approximately 1,500 per 100,000, and the number of AIDS deaths would be reduced by 800,000 to 8.2 million through 2015. Life expectancy at birth would decline by somewhat less, to 43 years by 2010 and increase to 46 years by 2015. The number of AIDS orphans would be lower than in the baseline scenario by 160,000 in 2015.

13. Demographic projections have not been updated since the announcement in November 2003 of the government's plan for the universal provision of ARVs, but the impact of ARVs may be significant. A joint task team of the National Department of Health and the treasury used the ASSA model to estimate the impact of extending the life of AIDS patients by up to 4½ years with ARVs. They found that ARVs could result in 1.7 million AIDS deaths being deferred until after 2010, with the number of children becoming orphans during 2003–10 reduced by 860,000 or nearly half.⁷ There may be other benefits, including heightened public awareness, increased interest in counseling and testing, less risky sexual behavior, and a reduction in HIV incidence

D. The Economic Impact

14. The South African economy has been affected by HIV/AIDS through a variety of channels. In addition to increased spending on health care, which is discussed in more detail in the next section, the major effects relate to lower labor productivity and higher absenteeism, loss of semi-skilled and skilled labor, and increased costs of recruitment, training, and occupational health. These costs have an unquantifiable adverse impact on investment. A survey of 1,000 companies conducted in 2003 by the Bureau for Economic Research at Stellenbosch University (BER) found that while just 9 percent of South African companies reported experiencing a significant adverse impact from HIV/AIDS at present,

⁷ Republic of South Africa, Department of Health and National Treasury, 2003, *Summary Report of the Joint Health and Treasury Task Team Charged with Examining Treatment Options to Supplement Comprehensive Care for HIV/AIDS in the Public Health Sector*, Pretoria: Department of Health, p.19.

43 percent expect such an impact in the next five years. One-third of the companies surveyed indicated that HIV/AIDS had reduced labor productivity, increased absenteeism, raised the cost of employee benefits, and adversely affected profitability. Thirty percent of companies reported higher labor turnover rates, while one-fourth had experienced increased recruitment and training costs.⁸

15. With increasing rates of HIV prevalence and growing AIDS mortality, these impacts are expected to intensify in the coming years, although analysts have predicted a wide range of potential outcomes. Initial studies incorporated demographic projections and considered various impacts of the disease in macroeconomic models. Inputs included assumptions about lower-labor productivity and diminished labor force growth, shortages of semi-skilled and highly-skilled workers, and negative effects on total factor productivity (TFP) growth. The models also incorporated the effects of increased spending on health care, funerals, and death benefits, higher fiscal deficits, lower household savings, and lower corporate profitability. These, in turn, contributed to lower rates of public and private investment. The studies also considered impacts of exports and imports on growth, foreign investment, inflation, and interest rates.

16. Several studies have predicted relatively moderate effects of HIV/AIDS, given that the disease falls disproportionately on the unemployed and low-skilled, and that the unemployment rate in South Africa is high. In addition, health care expenditures make up a relatively small share of household, corporate, and public spending. As a result, these studies project that GDP growth is lower, but still positive, and in several cases, GDP per capita would increase in the presence of AIDS, reflecting—among other factors—the sustaining of investment and household expenditures by insurance payouts and asset liquidation. The studies differ in the extent of labor productivity impacts, crowding out of public investment, and effects of the disease on TFP growth (Table I.2).

17. The findings of relatively modest effects and increased GDP per capita in the presence of HIV/AIDS has generated criticism in view of the catastrophic social impacts of the disease. More recent studies have asserted that the initial work failed to account adequately for the welfare impacts or complex transmission channels of the disease from households, small medium-sized enterprises, and communities to the macroeconomy.⁹ McPherson (2003) suggested that the early models of HIV/AIDS effects did not account for the erosion of networks needed for labor specialization and the development and maintenance of human and social capital. Crafts and Haacker (2003) argued that the earlier studies provided an incomplete picture of the welfare impacts of the disease. They used a value of statistical life approach to calculate the impact of HIV/AIDS on welfare through

⁸ Among companies with more than 500 employees, 75 percent reported lower productivity and higher absenteeism, increased employee turnover and higher benefit costs.

⁹ See, for example, Whiteside (2002).

increased mortality and lower life expectancy. They found an aggregate welfare loss in South Africa of 60 percent of GDP in 2003, and projected a loss of 75–80 percent of GDP by 2010.

Table I.2. Assumptions and Results from Selected Macroeconomic Studies of HIV/AIDS in South Africa

	2006-10			2011-15	
	ING (1999)	BER (2001)	Arndt/Lewis (2000)	ING (1999)	BER (2001)
Labor force 1/	-12.8	-12.2	-12.8	-18.1	-20.9
Labor productivity 2/	-33.3	-40	-50	-33.3	-40
Total factor productivity 3/	Not considered	-21	-50	Not considered	-21
Domestic savings 4/	-2.1	-1.9	--	-2.2	2.0
HH disposable income 1/ 5/	-4.4	-0.1	--	-5.8	-0.5
HH consumption 1/	-0.8	0	--	-0.8	-0.7
Gross domestic fixed investment 4/	-0.1	-1.6	--	0	-2.1
Fiscal deficit 4/	-0.8	-0.1	--	-0.9	-0.4
Export growth 6/	0.1	0.2	--	0	0
Import growth 6/	-0.3	0.4	--	-0.5	0.2
Current account deficit 4/	-2.4	0.2	--	-2.4	0.6
Inflation (CPI) 6/	0.4	2.6	--	-0.1	3.3
Nominal interest rates 1/	0.3	2.9	--	0.6	4.1
Unemployment rate 1/	-0.9	-4.5	--	-1.2	-9.0
GDP growth 6/	-0.4	-0.4	-2.0 to -2.6	-0.3	-0.9

Notes:

1/ Difference in levels, in percent relative to non-AIDS scenario. For labor force, figures are for 2010 and 2015.

For interest rates and unemployment, percentage point difference in rates.

2/ Loss of working hours for those with AIDS, in percent.

3/ Reduction of TFP growth, relative to non-AIDS scenario, in percent.

4/ Percentage point decline of ratio to GDP.

5/ BER figures are percentage point decline in annual growth, relative to non-AIDS scenario.

6/ Percentage point change in annual growth, relative to non-AIDS scenario.

18. Bell, Devarajan, and Gersbach (2003) asserted that the long-run costs of AIDS may be catastrophic, if the disease destroys existing human capital and weakens the transmission of knowledge and abilities from one generation to the next. They presented an overlapping generations model, in which premature mortality from AIDS feeds back through the exploding population of AIDS orphans to sharply lower education participation and attainment, and severely weaken human capital formation. In addition, they suggest that the higher likelihood of contracting the disease provides disincentives for education, while lower education reduces AIDS awareness. These interactions are reinforced in successive generations. Without early policy intervention, productivity would collapse, and society

would descend into poverty. By 2050, real incomes would fall to one-half of 1990 levels and to one-quarter of levels under a non-AIDS scenario. Bell, Devarajan, and Gersbach (2003) suggested that the dire outcome could be forestalled by technological change or substantial additional health and social spending to head off the increase of premature mortality and AIDS orphans, and to maintain and further educational attainment.

E. Policy Response

19. The official response to the AIDS epidemic began in 1992, when a national coordinating committee was established to develop an HIV/AIDS strategy. The Reconstruction and Development Program, issued by the African National Congress in advance of the April 1994 elections, pledged to combat the disease by improving public awareness, particularly in rural areas and among women, and to treat AIDS and STDs at public health facilities. The first HIV/AIDS national strategy was adopted in 1994 and reviewed in 1997. The review identified problems of limited human and financial resources at all levels of government, and recommended increased resources, improved capacity, and greater political commitment. The current policy is guided by a May 2000 strategic plan for 2000–05, updated by several subsequent cabinet statements. The plan involves four priority areas: public awareness and prevention; treatment and support; research and monitoring; and legal and human rights.

20. Direct public spending on HIV/AIDS increased thirtyfold from R 30 million in 1994/95 to over R 1 billion (0.1 percent of GDP) in 2002/03, and doubled in 2003/04 to over R 2 billion (0.2 percent of GDP). Total HIV/AIDS-related spending, direct and indirect, is considerably higher, as the authorities estimate that up to one-quarter of public health spending (0.8 percent of GDP) is connected with HIV/AIDS-related treatment, while nutrition support programs (0.1 percent of GDP) and targeted income support (0.5 percent of GDP) are considered key elements in the broad response to the disease.

21. There has been considerable controversy in recent years over government provision of ARV therapies through the public health system. A landmark decision to provide ARVs was taken in August 2003, and a comprehensive plan for the rollout of the drugs was issued in November.¹⁰ The plan helps address the authorities' long-standing concerns with weaknesses in health and laboratory infrastructure, high drug and testing costs, complex treatment regimes, and potential toxicity of the drugs. The approval of ARV provision came after public protests, a series of court decisions mandating drug provision to pregnant women and victims of sexual assault, and a drastic reduction of drug costs, from R 50,000 per patient

¹⁰ Provincial authorities, particularly in KwaZulu-Natal and Western Cape, have occasionally taken the lead in providing drug treatments, including in advance of national decisions.

per year in 2000 to R 4,000–10,000 at present. The decision also provided the basis for negotiations with manufacturers that led to a further reduction of drug and testing costs.¹¹

22. The provision of ARVs to as many as 400–500,000 AIDS patients at present and 1.2 million in five years is unprecedented in scope and complexity worldwide. The largest program to provide ARVs at present involves 130,000 people receiving treatment in Brazil. Less than 20,000 South Africans receive ARVs at present, mostly through private health plans. Implementation will require major improvements to staffing and training, particularly in rural areas, to treatment facilities, to counseling and testing centers, to patient information systems to permit monitoring and follow-up, and to pharmaceutical distribution and laboratory infrastructures.

23. ARV program costs are projected to reach 0.3 percent of GDP per year by 2007/08.¹² A key provision of the plan is full national access, with at least one service point to be opened in each of 53 health districts during the first 12 months of the program. Additional sites will be opened in some urban health districts where substantial demand pressure is expected. The plan assumes that 95,000 patients, 20 percent of those with AIDS and without other medical coverage, will seek treatment in the first months, although actual demand, and therefore costs, may be considerably higher. Half of the recipients are expected to be in KwaZulu-Natal (30 percent) and Gauteng (23 percent). The plan states that South Africans covered by private medical insurance should receive ARVs through their plans, rather than through the public health system.¹³ The total number of ARV recipients is projected to grow sharply as administrative capacity is put in place, reaching 85 percent coverage in five years and 1 million AIDS patients. Drug and laboratory testing costs are expected to be reduced by a further 25–50 percent over the next five years through economies of scale, importation of generic drugs, and issuance of licenses for generic production in South Africa.

¹¹ Costs were reduced by a further 40 percent for some drug treatments and as much as 85 percent for others during August–November 2003. Laboratory testing costs were cut by an additional 20–35 percent.

¹² With significantly higher drug costs, a 2000 report by Abt Associates placed the costs of ARV provision in the public sector at R 70 billion or 4 percent of GDP in 2010.

¹³ Sixteen percent of South Africans are covered by private medical insurance. According to Connelly (2002), the insurance company, Old Mutual, has estimated that 7.5 percent of South Africans covered by private insurance are HIV-positive, suggesting that 35–80,000 privately insured South Africans have AIDS, as compared with 475,000 AIDS patients without private medical coverage.

24. Bilateral and multilateral donors have assisted the government with capacity building, training, health economics, and support for organizations providing home-based care.¹⁴ South Africa has also received assistance from the Global Fund to Fight AIDS, Tuberculosis and Malaria, including \$41 million over 2003–04 to support drug provision, awareness efforts, health sector training initiatives, and expansion of laboratory services.¹⁵

F. Response of the Nongovernmental and Business Communities

25. In recent years, non-governmental organizations, private insurance providers, and South African companies have stepped up their response to HIV/AIDS. The response has taken a number of forms, such as the introduction of sophisticated awareness programs, prevention efforts, voluntary counseling and testing programs and, in some cases, provision of ARVs to infected employees. The recent BER company survey suggested that awareness and prevention programs offer opportunities for cost savings, and with the dramatic decline of drug and testing costs, provision of ARVs also offers prospects for corporate savings, particularly in respect of payments of death benefits to survivors.

26. South African and international nongovernmental organizations have played a significant role in the response to HIV/AIDS. The trade unions launched HIV/AIDS awareness initiatives in the late 1980s and urged adoption of equitable HIV/AIDS policies, including through preparation of codes of good practice. Other NGOs, notably the Treatment Action Campaign and Médecins Sans Frontières (MSF), have been instrumental in securing access to drug treatments, including by court decision and by operating township treatment facilities. Several international charitable foundations have been active in South Africa, supporting AIDS awareness and research programs and assisting the government in preparing the plan for the rollout of ARVs and in negotiations with suppliers of drugs and laboratory tests.

27. The response of South African companies, however, has been uneven and incomplete, with significant efforts coming mainly from large corporations and foreign investors that have substantial human and financial resources to manage complex response programs. The Second Report of the King Committee on Corporate Governance (2002) warned of the growing threat of HIV/AIDS to the South African economy and South African businesses. The report noted that the business community had done little to respond to HIV/AIDS and urged companies to improve their understanding of the potential social and business impacts of the disease, to adopt and implement policies to manage impacts, and to regularly monitor performance and report to stakeholders.

¹⁴ Agencies that provide support include UNAIDS, the EU, and aid agencies of EU member countries, the U.S., Canada, Japan, and Norway.

¹⁵ These programs represent initial work under two multiyear grants totaling \$165 million. Applications have been made for two additional grants worth \$90 million.

28. Leading HIV/AIDS researchers in South Africa have expressed particular concern with the weak response of small- and medium-sized companies to acknowledge HIV/AIDS risks and implement disease management programs. The recent BER survey highlighted these concerns, finding that just 13 percent of small companies have implemented a formal AIDS policy, compared with 90 percent of large employers. While 69 percent of large companies surveyed have a voluntary counseling and testing program, just 9 percent of small companies have such a program in place. Few companies, large or small, have conducted research to assess the impact of HIV/AIDS on their employees, their production costs or their consumer base. The survey suggested that the stepped-up response of the government through the provision of ARVs may help focus corporate efforts.

G. Conclusions

29. HIV/AIDS has had significant social and economic repercussions in the post-apartheid period in South Africa. Critical effects have included increased mortality, a sharp reduction in life expectancy, lower labor productivity, and creation of a sizeable population of AIDS orphans. These repercussions have undermined the effectiveness of a host of efforts and programs to bolster social conditions by improving education, health, access to water, sanitation, electricity, and other public services. Direct and indirect spending by the state to mitigate the impact of HIV/AIDS amounts to 1½ percent of GDP, while companies have begun to cope with such impacts as lower productivity, greater absenteeism, higher health expenses and insurance premiums, and loss of staff.

30. Given the nature and progression of the disease, these social and economic costs are expected to worsen, as the percentage of South Africans with HIV increases and the number of lives claimed by AIDS grows. The continuing increase of HIV prevalence rates is a significant cause of concern, suggesting that AIDS awareness and prevention efforts are not as effective as hoped. Some researchers have suggested that the ultimate impact of the disease may be catastrophic. However, recent developments, including the reduction of the costs of AIDS drugs and laboratory testing costs and the decision by the government to provide these drugs through the public health system, give hope that the worst consequences of the disease may be mitigated.

References

- Actuarial Society of South Africa, 2003, *Actuarial Projection of the Epidemic: Summary Statistics*, downloaded January 2004 from <http://www.assa.org.za>.
- Arndt, Channing, and Jeffrey D. Lewis, 2000, "The Macro Implications of HIV/AIDS in South Africa: A Preliminary Assessment," *South African Journal of Economics*, Vol. 68, (December), pp. 1-32.
- Bell, Clive, 2003, Shantayanan Devarajan and Hans Gersbach, "The Long-run Economic Costs of AIDS: Theory and an Application to South Africa," mimeo.
- Bradshaw, Debbie, Pam Groenewald, Ria Laubscher, Nadine Nannan, Beatrice Nojilana, Rosana Norman, Desiree Pieterse and Michelle Schneider, 2003, "Initial estimates from the South African National Burden of Disease Study, 2000," *Medical Research Council Policy Brief*, No. 1 (March).
- Bureau for Economic Research, 2001, *The Macroeconomic Impact of HIV/AIDS in South Africa*, BER Economic Research Note No. 10.
- Connelly, Patrick, 2002, *The Cost of Treating HIV/AIDS with ARVs in South Africa: Who Knows? Who Cares?* (paper submitted to IAEN for the Barcelona Conference).
- Crafts, Nicholas and Markus Haacker, 2003, "Welfare Implications of HIV/AIDS," International Monetary Fund/Working Paper/03/118, Washington DC.
- Johnson, Leigh and Debbie Budlender, 2002, *HIV Risk Factors: A Review of the Demographic, Socio-economic, Biomedical and Behavioral Determinants of HIV Prevalence in South Africa*, CARE Monograph No. 8, Cape Town, University of Cape Town, Centre for Actuarial Research, 2002.
- McPherson, Malcolm, 2003, "Macroeconomic Models of the Impact of HIV/AIDS," mimeo.
- Republic of South Africa, 2003, *Department of Health and National Treasury, Full report of the Joint Health and Treasury Task Team Charged with Examining Treatment Options to Supplement Comprehensive Care for HIV/AIDS in the Public Health Sector*, Pretoria: Department of Health.
- Republic of South Africa, Department of Health, 2003, *Operational Plan for Comprehensive HIV and AIDS Care, Management and Treatment for South Africa*, Pretoria: Department of Health.

Republic of South Africa, Department of Health, 2002, *Summary Report: National HIV and Syphilis Antenatal Sero-Prevalance Survey in South Africa 2002*, Pretoria: Department of Health.

Republic of South Africa, Statistics South Africa, 2004, "*Mid-year Population, South Africa, 2004*", Statistical Release p0302, Pretoria: Statistics South Africa.

South African Business Coalition on HIV & AIDS (SABCOHA), 2004, *The Economic Impact of HIV/AIDS on Business in South Africa 2003* (a study funded by SABCOHA and researched and compiled by the Bureau for Economic Research).

Whiteside, Alan, 2002, *The Economics of HIV/AIDS*, plenary presentation for the International AIDS Economics Network Economics of HIV/AIDS in Developing Countries Symposium.

II. ASSET PRICES AND MONETARY POLICY: SOME LESSONS FROM INDUSTRIAL COUNTRIES FOR SOUTH AFRICA¹

A. Introduction

1. Real estate prices in South Africa have risen strongly in recent years, growing by 18 percent per year since mid-1999. Empirical evidence for a group of industrial countries suggests that the probability of a housing price boom being followed by a collapse in housing prices is about 40 percent (IMF, 2003). Many of these house price corrections have been associated with a decline in economic activity or a period of financial instability. This raises a number of policy questions for South Africa. In particular, is the real estate market exhibiting signs of a speculative bubble? Would an abrupt property price correction pose a risk for the banking sector or lead to an economic slowdown? What can and should authorities do to minimize these risks? This paper addresses these questions by comparing the experience of industrial countries with asset price booms to developments in South Africa.

2. The paper is structured as follows: After presenting some stylized facts on property price developments in South Africa, the paper reviews briefly the link between asset price developments and economic activity. Then it looks at the ability of policymakers to identify asset price booms and to distinguish asset price boom periods that are in line with fundamental developments from periods that are commonly referred to as a “bubble”. In the next section, the paper investigates whether monetary policy should react to an increase in asset prices during an asset price boom period, and what practical issues policymakers face.

3. To preview the main findings, results suggest that there is no clear evidence that property is significantly overpriced in South Africa. Banks appear to be fairly resilient to potentially adverse developments in the real estate market. Developments of selected macroeconomic indicators in South Africa, however, appear to share some similarities with asset price boom periods in industrial countries that were followed by a period of weak economic growth or financial instability. As in industrial countries, a close monitoring of real estate developments is clearly warranted. Furthermore, it is suggested that additional analyses of ways to broaden and deepen the market for mortgages be made. Most notably, an increase in the variety of mortgage contracts, including the availability of longer-term fixed-rate contracts, could make the market more resilient to sudden shifts in interest rates. The analysis also highlights the desirability of broadening data availability.

B. South Africa: Some Stylized Facts

4. As is also common in some industrial countries, data on property price developments in South Africa are somewhat limited. Based on available data from Absa, the leading mortgage lender, the following stylized facts emerge (Absa 2004a–d) (Figure II.1):²

¹ Prepared by Norbert Funke.

- Since 1980, house price developments appear to be in their second cycle. Following the house price boom in the early 1980s with its peak in 1984, house prices fell by over 40 percent in real terms within three years. During the following ten years, real house prices were more stable, though still on a gentle declining trend.
- Real house prices bottomed out in 1997. Over the last 5 years they have increased by some 11 percent per year in real terms. But, real house prices are still below their peak of 1984.
- As in industrial countries, house prices have fluctuated substantially over time. The average standard deviation of real annual house price changes is 9 percent, slightly higher than the average of almost 7 percent in industrial countries (IMF, 2004).
- On a regional level, house prices have exhibited some differences. Since 1998 nominal house prices more than doubled in Gauteng and almost doubled in KwaZulu-Natal; the lowest increase was recorded in Limpopo.
- Prices for existing houses tend to be lower than prices for new houses. This may be seen as an indication that existing houses are below their replacement value or that there is growing demand for new and, possibly, higher-quality housing.³
- The affordability of housing has declined. The ratio of house prices to gross household income increased to 6.1 in 2003, from 4.6 in 2000.

5. A number of economic factors have contributed to the strong rise in house prices. Monetary and credit policy was eased in 2003 and interest rates were lowered. Mortgage rates fell in line with official short-term interest rates and, as a result, the commercial banks' variable mortgage rate fell to 11.5 percent in the first quarter of 2004 from over 23 percent at the end of 1998.⁴ Declining interest rates have provided a stimulus to the market. Demand has been reinforced by increased demand from an emerging middle class and foreign interest in coastal areas property. The magnitude of the overall effect of recent tax changes, such as

² Absa provided the house price data on South Africa. Data is based on approved loan applications by Absa, and relates to the total purchase price of houses in the 80m²–400m² size category, valued at R 1.6 million or less. Absa smoothes prices in an effort to exclude the distorting effects of outliers.

³ It could also reflect that quality improvements are not appropriately reflected in the property price index; a familiar problem in some industrial countries as well.

⁴ Mortgage contracts are typically based on variable rates. Fixed mortgages are also offered, but mostly for periods of up to two years.

reduction in the transfer duty for the third consecutive year in the 2004/05 budget, is more difficult to predict.⁵

6. Some concerns over price stability in the housing market and adverse economic consequences derive from three sources. First, as housing affordability has declined, some households may have become more vulnerable to economic shocks. If the value of mortgage debt and debt service relative to income increased, homeowners could be forced to sell (or driven in default), thereby increasing the supply of housing and driving prices down. Second, the possibility of rising interest rates as the economic recovery progresses and inflation pressures build, could affect household's debt-service capacity and dampen housing demand. In particular, adjustable rate mortgages make households vulnerable to interest rate shocks. Third, the rise in property prices occurred against the background of some easing in monetary policy and strong domestic credit growth. During 2003, credit extended to the private sector increased by some 12 percent, if the investment category, which was distorted by regulatory and accounting changes, is excluded. Moreover, mortgage advances increased by 16.5 percent in 2003. As will be shown in this paper, in industrial countries, this constellation of macroeconomic factors has been associated with an increase in the probability of a house price correction.

C. Transmission Mechanisms

7. Asset price fluctuations may affect the real economy through a variety of channels. These include their effect on consumption via a wealth change, investment, and banks' balance-sheets (Mishkin, 2001).

8. Changes in asset prices affect household consumption spending through a wealth effect, primarily in the form of stock market and real estate valuations. Recent studies for the United States find that a \$1 decrease in stock market wealth leads to a reduction of spending of 4–7 cents; for other industrialized countries, the impact is somewhat less (e.g., IMF, 2002). The main effect is short-lived and dissipates over 1–3 years. Empirical analyses also suggest that the impact of a significant fall in real estate prices may be more important than an equivalent decline in stock prices (Case, Quigley, and Shiller, 2001), though this finding is not unchallenged (Ludwig and Slok, 2002). Available evidence for a group of emerging markets also suggests that there is a small, but statistically significant, relationship between stock market developments and private consumption. Over a three-year period, a 10 percent decline (increase) in stock prices is associated, on average, with a 0.2–0.4 percent decrease (increase) in private consumption (Funke, 2004). Preliminary estimates for South Africa also

⁵ The transfer duty on property amounts to zero percent for a value of property up to R 150,000; 5 percent on the value above R 150,000 up to R 320,000, and for property valued above R 320,000 it amounts to R 8,500 plus 8 percent on the value above (see also Absa, 2004, Second Quarter). The 2004/05 budget also announced that the 0.2 percent stamp duty on mortgages secured by property would be abolished with effect from March 1.

point to the existence of small stock market and real estate wealth effects. However, as in the case of industrial countries, the results are very sensitive to the choice of the observation period (see Box 1).

9. Large asset price swings also affect investment.⁶ With rising stock prices the market value of firms increases, relative to its replacement cost, and thus makes the financing of investment projects relatively cheaper. In contrast, in the case of a significant decline in stock prices, companies find it more difficult to raise equity and can only raise less money relative to the cost of equipment, thus investment may decline. Comparable mechanisms are in place in real estate markets. A higher price of housing, relative to construction costs stimulates housing construction because of higher profitability. The reverse is true for falling house prices. A sudden decline in property prices renders investment less attractive and reduces the profitability of the investment. As a result, investment may dry up and contribute to an economic slowdown.

10. A weakening of asset prices may have adverse effects on financial stability. Changes in asset prices may be transmitted to the real side of the economy through banks' balance sheet effects. An increase in stock market or real estate wealth increases the available collateral and strengthens the financial position of borrowers. The higher level of available collateral tends to reduce the agency costs of the lender, diminishes borrowers' incentives to engage in moral hazard, and leads to a reduction in the external finance premium (Wagner and Berger, 2002). Lenders' willingness to supply credit increases and hence investment and consumer durable expenditure may increase. A decline in net worth, as a result for example of falling equity or property prices, may set into motion opposite effects.

D. Identification of Asset Price Boom Periods

11. An appropriate policy response to an emerging asset price boom depends on at least two factors. Policymakers must be able to identify asset price booms and, ideally, be able to distinguish between potentially harmful asset price booms ("high-cost" booms) and asset price booms that are likely not to result in an asset price bust and economic or financial instability ("low-cost" booms).⁷

12. There is no well-established definition of what an asset price boom is; and booms are sometimes associated with bubbles. From a theoretical perspective, a bubble refers to a situation where the price of an asset exceeds its fundamental value by a wide margin. However, making such assessment is fraught with complications. As a result, most empirical analyses follow a more pragmatic approach and focus on large and persistent increases in asset prices, using business cycle techniques (e.g. IMF, 2003) or large deviations from trend, to identify boom periods. In the latter case, trend measures have been derived on the basis of

⁶ This relationship is captured by Tobin's "q" (e.g., Tobin, 1980).

⁷ This terminology is adopted from Detken and Smets (2004).

past growth rates or with the help of a Hodrick-Prescott filter (e.g., Bordo and Jeanne, 2002, and Detken and Smets, 2004)

13. The following empirical analysis focuses on the linkages between asset price booms and macroeconomic and financial developments in industrial countries in order to derive some lessons for South Africa. The analysis uses event-study methodology to compare the development of key macroeconomic indicators before, during, and after asset price boom periods. The analysis associates an asset price boom with a period where real asset prices are 10 percent above their annual trend value, based on a Hodrick-Prescott filter.⁸ For a group of 18 countries, we identify some 40 asset price boom periods during the 1970–2002 period.⁹ Asset price booms refer to aggregate asset prices, which are the weighted sum of property price and equity price developments. Using this methodology for South Africa suggests that the recent increase in property prices may indeed be classified as a property price boom, particularly since 2001. However, South Africa has not experienced a stock price boom. And, when equal weights are given to stock and house price developments, the situation could be characterized as an emerging asset price boom since 2003.¹⁰

E. Asset Price Booms, Inflation, Recessions, and Financial Instability

14. In general, monetary authorities may be concerned about asset price boom periods because of the macroeconomic repercussions. In particular, price booms may signal a rise in inflation or be followed by an asset price reversal that results in a slowdown in economic activity and, possibly, a period of financial instability.

15. Increases in asset prices could signal a rise in inflation or inflation expectations. If asset price developments are a leading indicator for inflation, a tightening of monetary policy may be warranted, to avoid an increase in inflation. In the context of a new Keynesian model with sticky prices and a financial accelerator, Bernanke and Gertler (1999, and 2001) show in a number of simulations that monetary authorities should indeed consider asset price changes if, and only if, they signal changes in inflation expectations. However, the empirical evidence on the relationship between asset price booms and inflation is mixed (see also Stock and Watson, 2003). Borio, English, and Filardo (2003) find that, on average, inflation does not increase significantly during, and directly after, the boom. Borio and Lowe (2002) suggest that causality may also run in the opposite direction. A disinflation period or a low inflation environment may be conducive to the development of an asset price boom. Most of the asset price booms in industrial countries during the late 1990s/early 2000s occurred during a

⁸ Following Detken and Smets (2004), the smoothing parameter is set to 1000.

⁹ The BIS data set was provided by Steve Arthur and Claudio Borio. For a description of the calculation of aggregate asset prices see Borio, Kennedy, and Prowse (1994).

¹⁰ Little information is available on the relative share of equity and real estate wealth in household wealth.

period of disinflation or in a low-inflation environment. Developments in South Africa also appear to correspond to the situation where a boom period developed during a disinflation period. At the same time, there is some indication that inflationary pressures may be building.

16. To provide further evidence on the link between asset price booms and inflation, Figure II.2 compares inflation developments around the last year of the asset price boom for our sample of industrial countries. In each case, the last year of the asset price boom, $t-5$ depicts the situation five years before, and $t+5$, the situation five years afterwards. The data indicate that, on average, inflation has slightly increased during the asset price boom period. They do not, however, suggest that asset price booms are a clear leading indicator for future inflation, as inflation tended to fall after the boom period.

17. Increases in asset prices are often followed by asset price corrections which, in turn, may lead to a slowdown in economic activity and may be accompanied by a period of financial instability.¹¹ From a policy perspective, it would be useful to identify regularities that help to distinguish between high-cost booms and low-cost booms. To this end, Figure II.3 compares the development of selected macroeconomic variables between boom periods that were followed by a recession and boom periods that were not followed by a recession.¹² The graphs suggests that asset price booms are more likely to be followed by recessions if the boom period in asset prices is:

- largely driven by a boom in residential property prices (peaks after stocks),
- characterized by an easing of monetary policy during the boom period and fairly strong credit growth,
- accompanied by some upward pressure on inflation, and
- followed by a sharp decline in credit and investment.

Developments in South Africa appear to share some of these characteristics, notably the loosening of monetary conditions and a pick up in inflation.

18. Asset price changes may also lead to financial imbalances and financial instability in the medium term.¹³ A number of banking crises in industrial countries were associated with a

¹¹ See e.g., Cecchetti and others, 2003; and Bordo and Jeanne, 2002.

¹² Recessions are defined as a period of negative growth. Results are qualitatively similar, if the assumption of recessions is relaxed through considering a period of low growth or below-trend growth.

¹³ See, for example, Mishkin and White, 2002, Schwartz, 2002, and Bean 2003.

property price boom, including the crises in Japan (1992) and in the Nordic countries (e.g., Norway in 1987, Finland in 1991, and Sweden in 1991). At present, however, the banking sector in South Africa, which finances most real estate transactions, appears reasonably well protected against a possible drop in property prices:

- The mortgage debt of households has grown significantly less rapidly than the market value of housing; the ratio of household debt to market value of housing shrank to 42 percent in 2003 from 58 percent in 1999.
- Banks are well capitalized. The average risk-weighted capital-adequacy ratio stood at 12.2 percent at the end of December 2003.
- Net nonperforming loans (nonperforming loans less specific provisions) as a ratio of total loans was only 2.4 percent.
- Banking sector stocks have outperformed the total market index since 2003.

19. Still, the distress phase at the end of a boom period may be long-lasting, while economic activity is holding up well. Therefore, the link between asset prices and financial stability may be of a longer-term nature.

F. Practical Issues for Policymakers

20. If policymakers were able to identify high-cost asset price booms, they would be confronted with two choices. Policymakers can opt for a proactive monetary policy that aims at preventing the emergence of an “asset price bubble” or follow a “reactive policy” of aggressive easing once the asset price bubble has burst. A proactive policy rests on the ability of the authorities to influence asset prices in the desired manner.¹⁴

21. It remains open to debate as to the extent the monetary authorities can influence asset price developments with the necessary degree of precision. Given the complex nature of the transmission mechanism, the increase in interest rates necessary to halt an asset price boom is difficult to determine. A small increase in interest rates may have no significant impact on stock or property prices. It may even lead to a further boost in asset prices, as small increases may reassure consumers and investors that the central bank is “ahead of the curve”. Moreover, the existence of various asset classes complicates the appropriate timing of the move, in particular if asset price developments are not synchronized.¹⁵

¹⁴ See for example, Smets (1997), Cogley (1999), Gilchrist and Leahy (2002), Bordo and Jeanne (2002), Hunter, Kaufman, and Pomerleano (2003), Filardo (2003, 2004).

¹⁵ In many cases stock market developments lead property price developments by 1–2 years.

22. In addition, (small) open emerging market economies may not face the same set of policy options as large industrial countries, in particular the United States. Although cross-border trading of real estate is more difficult than cross-border trading of securities, recent IMF research (2004) shows that property price developments are linked internationally through cross-border financial integration. Global interest rate developments and global economic activity appear to be major determinants of house prices in industrial countries. The average of the pairwise correlations of annual changes in real property prices between the United States and the other 17 industrial countries in our sample is 0.35. Between 1994 and 2002, the correlation between annual changes in real property prices in the United States and South Africa was 0.76.¹⁶ Cross-border linkages diminish the impact of domestic policy changes.

23. Experience from industrial countries suggests that there appears to be some reluctance from central bankers to admit that asset price developments play a significant role in their policymaking.¹⁷ From a central banker's perspective, the risks involved are asymmetric. In the case of preemptive tightening, there is a risk that the central bank will be blamed for bursting sound economic developments (The Economist, 2002, September 5). On the other hand, monetary policy may well be applauded for easing aggressively during an asset price bust period. However, a policy that favors an aggressive lowering of interest rates when asset prices tumble and (explicitly) refrains from an increase when asset prices boom, may create moral hazard problems. As long as private investors anticipate that the central bank will aggressively lower interest rates in the case of a bursting asset price boom, the central bank would provide some sort of safety net to international investors. Investors have incentives to follow a riskier investment strategy (Trichet, 2003). This asymmetry has the characteristics of a put option and may, therefore, give additional stimulus to an asset price boom.

24. If the central bank aims at influencing asset price developments, an appropriate communication strategy may be critical. Unfortunately, economic theory offers few insights into the linkages between communication, public reaction, and economic outcomes. Anecdotal evidence suggests that policymakers run the risk of contributing to financial market volatility, if they respond inappropriately to asset price developments, as for example has often been the case where policymakers tried to support exchange rates at levels not consistent with fundamentals.

25. The communication strategy needs to take into account the likelihood that the link between asset price developments and financial stability is of a longer-term nature. A number of central banks in industrial countries regularly publish Financial Stability Reports. In March 2004 the South African Reserve Bank (SARB) published its first Financial Stability

¹⁶ The correlation coefficient is negative (-0.16) for the period 1980 to 2002.

¹⁷ See Mussa, 2003, p. 49.

Review, which will help monitor developments in the financial system and help identify potential risks. Increasing sophistication of these reports will be a useful communication tool and may complement existing analyses for the conduct of monetary policy. As Mussa notes (2003, p. 50), it is important that any change in interest rates is undertaken and explained in the context of overall economic developments.

G. Policy Conclusions for South Africa

26. South Africa appears to share some of the characteristics (property price boom, easing of monetary policy, strong domestic credit growth) of asset price boom periods in industrial countries. These were often followed by a period of weak growth and, in some cases, banking sector fragility. At the same time, however, a closer analysis of available indicators suggests that aggregate asset price developments are, by and large, still in line with fundamentals.

27. The experience of industrial countries also suggests that a number of practical obstacles need to be overcome before a more proactive role of monetary policy is warranted. Because of the importance of global interest rates in explaining future movements in house prices, the role of monetary policy may be more limited in smaller economies. Open emerging market economies, therefore, may have to focus on the development of an appropriate regulatory environment and financial infrastructure to reduce the risk of future bubbles.

28. In South Africa, one risk relates to a sudden increase in interest rates, although at this stage the banking sector seems to be reasonably resilient to such a shock. The lag of long-term financing options makes borrowers more vulnerable to shifts in interest rates. To reduce this vulnerability, further analyses should be undertaken to investigate what changes may be needed to create an environment that would be conducive to a larger set of mortgage contracts. A larger variety of available mortgage contracts, including longer-term fixed-rate contracts, should allow for a more efficient allocation of interest rate risk.

29. As in many industrial countries, housing price data availability in South Africa is somewhat limited and relies on one private sector provider, Absa, the largest mortgage provider. A more systematic nationwide collection of data would provide more representative data. Moreover, if quality improvements are not adequately captured in housing market data, the measured increase in house prices may be overstated. At the same time, it would be important to collect comprehensive data on commercial property price developments. Commercial property prices also tend to follow boom bust cycles that are not necessarily synchronized with developments in residential property prices, but may lead to similar negative economic effects. Given the importance of the housing sector, improvements in the reliability of housing market data would be desirable.

Box II.1 Is the Wealth Effect Important For Consumption in South Africa?

The analysis uses a simple, traditional consumption model of the form:

$$(1) C_t = \alpha + \beta Y_t + \delta W_t + \varepsilon_t,$$

where C is real private consumption expenditure, Y real GDP (as proxy for real disposable income), W is real wealth, and ε is the error term. The standard interpretation is that the coefficient δ is the marginal propensity to consume out of wealth, i.e. the increase in consumer spending associated with an increase in wealth. Wealth is separated into stock market wealth and housing wealth, arguably the two most important wealth components. Stock market wealth is proxied by stock market capitalization, and housing wealth is proxied by real house prices, due to lack of availability of housing wealth data.¹⁸ The coefficients on the two wealth components may differ because of differences in ownership distribution, liquidity, and volatility of both wealth components.

The relationship is estimated using a vector-error correction model with 4 lags for the period 1985Q1 to 2004Q1. Tests for nonstationarity and cointegration were performed prior to the estimation. Results indicate that both types of wealth are statistically significant in the long run. The cointegration relationship gives the following results: the estimated coefficients on wealth represent elasticities, figures in parentheses are standard errors.

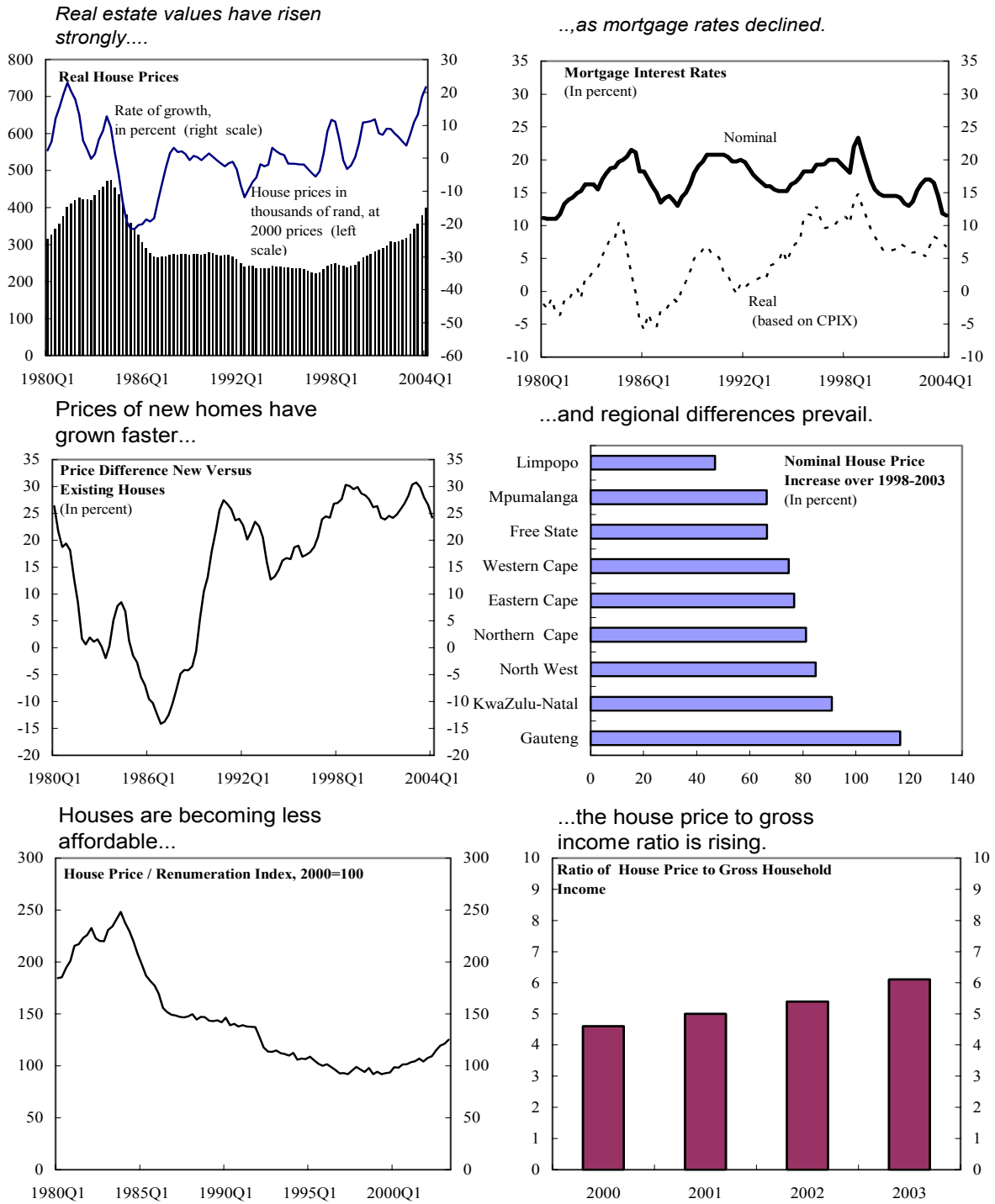
log(GDP)	log (stock market wealth)	log (house prices)
1.12	0.1090	0.0932
(0.1079)	(0.0132)	(0.0409)

The estimated coefficients on housing wealth and on equity wealth are similar. Results suggest that a sustained 10 percent increase in real stock market wealth or real property prices leads to an increase of around 1 percent in real private consumption expenditure. In the vector error correction formulation, the adjustment coefficient is significantly estimated at -0.15, indicating a reversion of consumption towards its long-run relationship, at a speed of 15 percent every quarter.

To see whether the wealth effect has changed over time, the standard model was estimated over a second time period: 1994Q1–2004Q1. In this case, the coefficient on the house price was not significant. These findings mirror results for industrial countries that parameter estimates are unstable, and this may indeed suggest that the wealth effect on consumption in South Africa is fairly small.

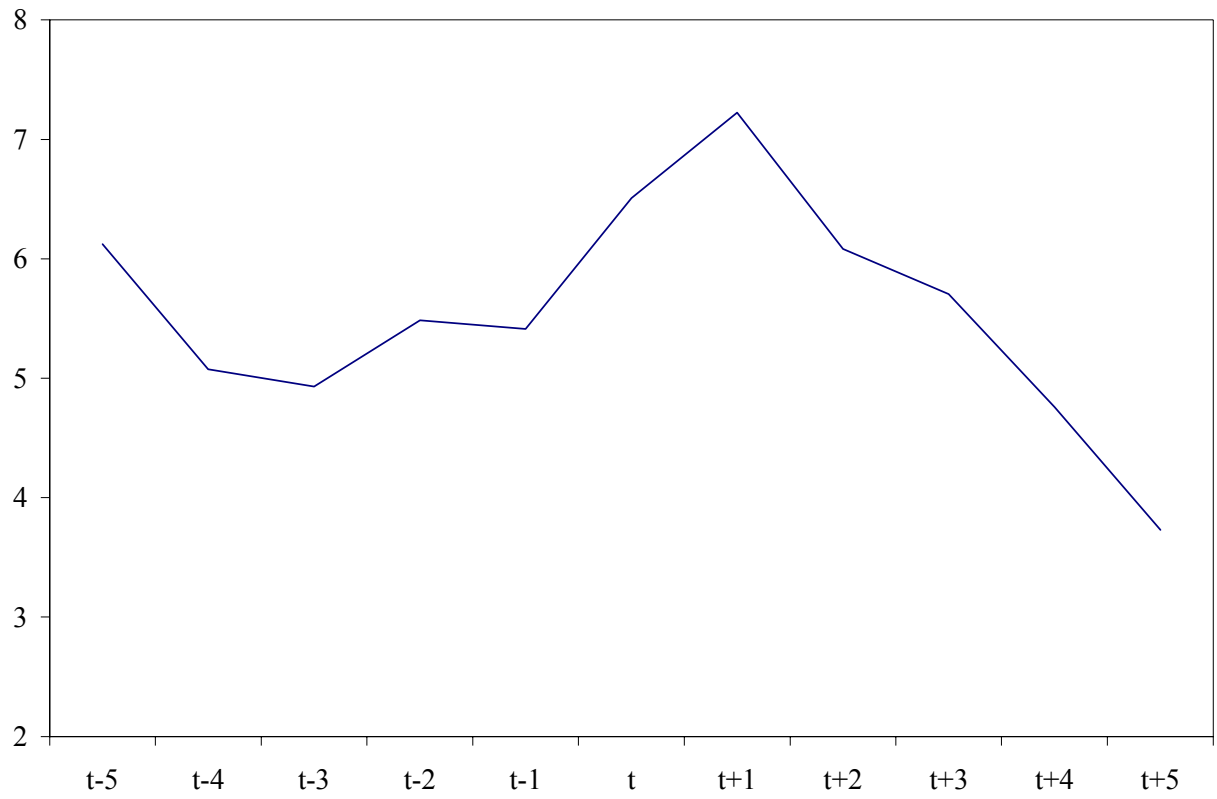
¹⁸ Results are more robust if stock market capitalization in U.S. dollars is used.

Figure II.1. South Africa: Property Price Developments



Source: Absa, IMF.

Figure II.2. Inflation around Asset Price Booms
(In percent)

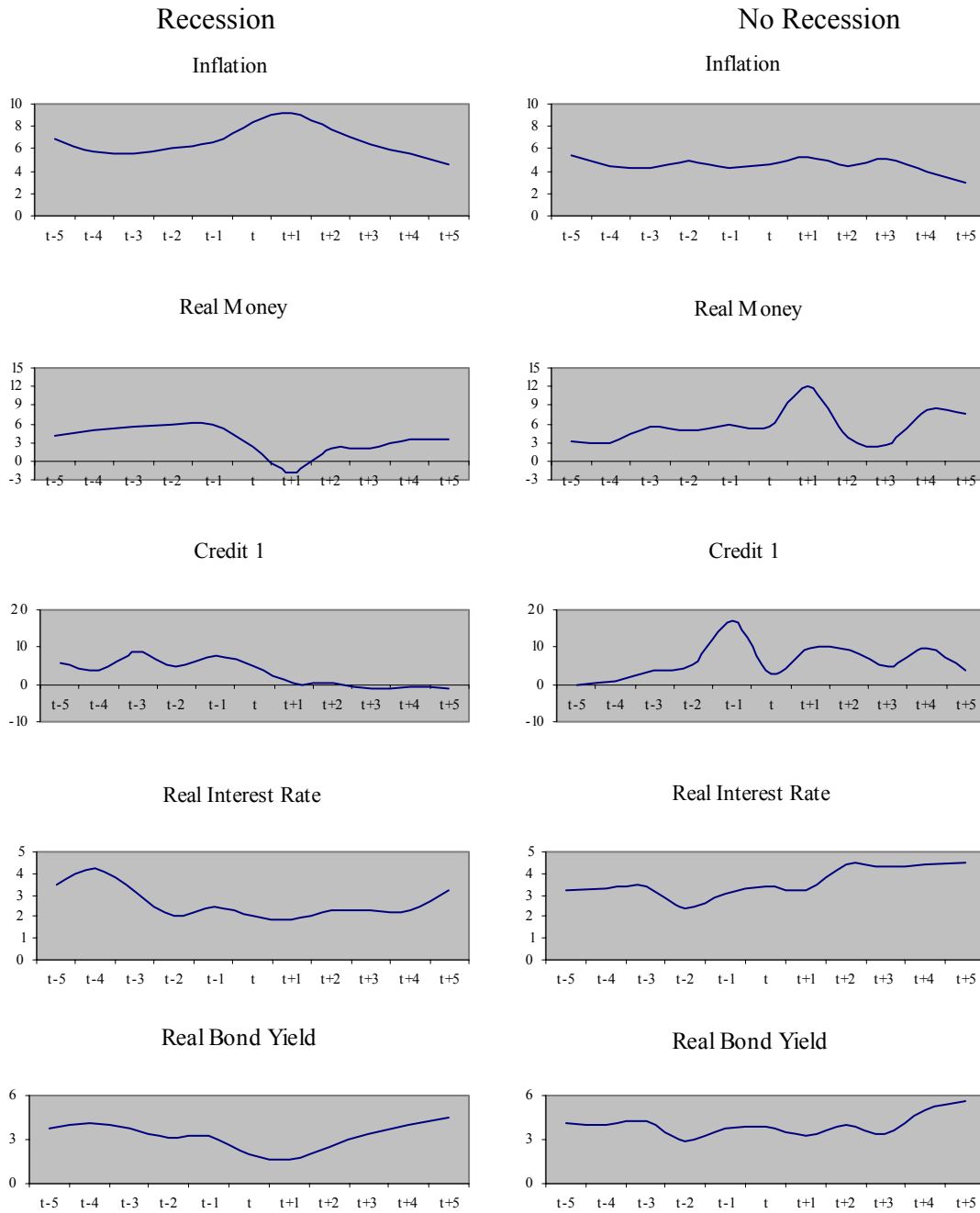


Sources: SARB and staff calculations.

Figure II.3. Asset Price Booms and Macroeconomic Indicators



Figure II.3. Asset Price Booms and Macroeconomic Indicators (concluded)



Source: Own calculations. This figure characterizes the development of main macroeconomic indicators around asset price booms. The left column refers to booms that were followed by a recession whereas the right column depicts booms that were not followed by a recession. In each case, t is the last year of an asset price boom.

References

- ABSA (2004a), Residential Property Market, Second Quarter 2004.
- _____ (2004b) "The State of the South African Residential Property Market: Bubble or Boom?", May 25 2004.
- _____ (2004c) Residential Property Market Developments at Provincial Level, June 9, 2004.
- _____ (2004d) "Econotrends: House Prices – Cyclical or Structural", June 29 2004.
- Bean, Charles, 2003, "Asset Prices, Financial Imbalances and Monetary Policy: Are Inflation Targets Enough?," BIS Working Paper No 140, (Basle: Bank for International Settlements).
- Bernanke, Ben and Mark Gertler, 1999, "Monetary Policy and Asset Price Volatility," Federal Reserve Bank of Kansas City (ed), *New Challenges for Monetary Policy*, Proceedings of the 1999 Jackson Hole Conference, Kansas City, pp. 77-128.
- Bernanke, Ben and Mark Gertler, 2001, "Should Central Banks Respond to Movements in Asset Prices?," *America Economic Review Papers and Proceedings*, Vol. 91, No. 2, pp. 253–257.
- Bordo, Michael, and Olivier Jeanne, 2002, "Monetary Policy and Asset Prices: Does 'Benign Neglect' Make Sense?," *International Finance*, Vol. 5, No. 2, p. 139–164.
- Borio, Claudio, N. Kennedy, and S.D. Prowse, 1994, "Exploring Asset Price Fluctuations Across Countries: Measurement, Determinants and Monetary Policy Implications," BIS Working Paper, No. 40 (Basle: Bank for International Settlements).
- Borio, Claudio and Philip Lowe, 2002, "Asset Prices, Financial and Monetary Stability: Exploring the Nexus," BIS Working Paper No. 114 (Basle: Bank for International Settlements).
- Borio, Claudio, William English, and Andrew Filardo, 2003, "A Tale of two Perspectives: Old or new Challenges for Monetary Policy?," *BIS Working Papers* No 127 (Basle: Bank for International Settlements).
- Case, Karl. E., Robert J. Shiller and John M. Quigley, 2002, "Comparing Wealth Effects: The Stock Market versus the Housing Market", NBER Working Paper No. 8606, (National Bureau of Economic Research: Boston, Mass.)

- Cecchetti, Stephen G., Hans Genberg, J. Lipsky and S. Wadhvani, 2000, *Asset Prices and Central Bank Policy*, London.
- Cecchetti, S., Hans Genberg, and Sushil Wadhvani, 2003, “Asset Prices in a Flexible Inflation Targeting Framework”, In *Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies*, Eds. William Hunter, Georg G. Kaufmann, Michael Pomerleano, pp. 427–444 (Cambridge, Mass: MIT Press).
- Cogley, Timothy, 1999, “Should the Fed Take Deliberate Steps to Deflate Asset Price Bubbles?,” Federal Reserve Bank of San Francisco, *Economic Review*, No. 1, pp. 42–52.
- Detken, Carsten and Frank Smets. 2004, “Asset Price Booms and Monetary Policy”, ECB Working Paper No. 364 (Frankfurt: European Central Bank).
- Filardo, Andrew, 2001, “Should Monetary Policy Respond to Asset Price Bubbles? Some Experimental Results, Working Paper 01-04 (Kansas City: Federal Reserve Bank of Kansas City).
- _____, 2003, “Should Monetary Authorities Prick Asset Price Bubbles?”, *Preliminary draft* (Basle: Bank for International Settlements).
- Funke, Norbert, 2004, “Is there a Stock Market Wealth Effect in Emerging Markets?,” *Economics Letters*, Vol. 83, pp. 417_421.
- Hunter, William, George Kaufman and Michael Pomerleano, 2003, “Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies, (Cambridge, Mass.: MIT Press).
- International Monetary Fund (2002), “Is Wealth Increasingly Driving Consumption”, *World Economic Outlook*, April (Washington: International Monetary Fund), pp. 74-84.
- _____(2003), “Real and Financial Effects of Bursting Asset Price Bubbles”, *World Economic Outlook*, April (Washington: International Monetary Fund), pp.61-94.
- _____(2004), “The Global House Price Boom”, *World Economic Outlook*, forthcoming (Washington: International Monetary Fund).
- Ludwig, Alexander, and Torsten Slok, 2002, *The Impact of Changes in Stock Prices and House Prices on Consumption in OECD Countries*, IMF Working Paper No.1, (Washington: International Monetary Fund).

- Mishkin, Frederic, 2001, "The Transmission Mechanism and the Role of Asset Prices in Monetary Policy, NBER Working Paper 8617 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Mishkin, Frederic. and Eugene White, 2002, "U.S. Stock Market Crashes and Their Aftermath: Implications For Monetary Policy", *National Bureau of Economic Research*, Working Paper 8992.
- Mussa, Michael, 2003, "Asset Prices and Monetary Policy", In *Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies*, Eds. William Hunter, Georg G. Kaufmann, Michael Pomerleano, pp. 427–444 (Cambridge, Mass: MIT Press), pp. 41–50.
- Schwartz, Anna J., 2002, *Asset Price Inflation and Monetary Policy*, "Asset Price Inflation and Monetary Policy," NBER Working Paper 9321 (Cambridge, Massachusetts: National Bureau of Economic Research).
- Smets, Frank 1997, "Financial Asset Prices and Monetary Policy: Theory and Evidence", Working Paper No. 47, Bank for International Settlements (London: Center for Economic Policy Research).
- Stock James and Mark Watson, 2003, "Forecasting Output and Inflation: The Role of Asset Prices", *Journal of Economic Literature*, Vol. XLI September, pp. 788-829.
- Tobin, James, 1980, "Asset Accumulation and Economic Activity" (Oxford: Basil Blackwell)
- Trichet, Jean-Claude, 2003, "Asset Price Bubbles and Their Implications for Monetary Policy and Financial Stability" in: *Asset Price Bubbles: The Implications for Monetary, Regulatory, and International Policies*, Eds. William Hunter, Georg G. Kaufmann, Michael Pomerleano pp. 41–50.
- The Economist, 2002, "To Burst or not to Burst? Was Alan Greenspan Really Powerless to Stop the Stockmarket Bubble," September 5th,
- Wagner, Helmut and Wolfram Berger, 2003, "Financial Globalization and Monetary Policy", *De Nederlandse Bank Staff Reports* No.95 (Amsterdam: De Nederlandse Bank).

III. THE CASE FOR BUILDING INTERNATIONAL RESERVES¹

A. Introduction

1. The South African Reserve Bank (SARB) achieved a milestone in May 2003. By eliminating the negative net open forward exchange position (NOFP),² a source of external vulnerability was removed. Since then, the SARB has continued to strengthen its reserve position, first by eliminating the forward book and then by accumulating additional gross reserves, reaching the same level as its stock of short-term external debt by mid-2004 (see Figures III.1 and III.2). This begs the question: how large a stock of reserves should South Africa accumulate? Or, more fundamentally, why should a country with a credible floating exchange rate build up reserves at all?

2. The purpose of this essay is to present an analytical framework that can be used to determine an appropriate reserve target for South Africa. It is suggested that this target can be usefully analyzed as depending on the perceived value of these benefits—identified as stemming from a reduction in the probability of a currency crisis, in the volatility of the exchange rate, and in costs of borrowing—weighed against the cost of holding reserves. The essay also highlights that some of the benefits of holding reserves apply to floaters and non-floaters alike, and are independent of the foreign exchange intervention. More concretely, it is argued that the net benefits of holding reserves diminish once reserves exceed the stock of short-term debt, and that holding reserves far in excess of this level may involve costs with little tangible returns. Section B discusses the benefits of holding reserves. The costs are discussed in Section C. Section D concludes.

B. The Benefits of Holding Reserves

3. Traditional models of optimal reserve holdings typically apply only to fixed or pegged exchange regimes. These highlight the need to maintain a high level of reserves to offset current and capital account shocks. The “buffer stock model,” for example, postulates that reserves are held at an optimal level, balancing, on the one hand, the benefits from using reserves to shield the economy against balance of payments shocks, and, on the other hand, the opportunity cost of holding reserves.³ For a given level of reserves, the higher the volatility of the shocks affecting the balance of payments and reserves, the more often policy adjustment has to be made; this can be costly. Flood and Marion (2002) find that, while this

¹ Prepared by Ketil Hviding (PDR) and Luca Ricci (RES).

² The NOFP was defined as gross international reserves of the SARB minus its foreign currency liabilities and net forward sales of foreign exchange. In March 2004, the NOFP was renamed “international liquidity position,” reflecting the closing of the forward book.

³ See Frenkel and Jovanovic (1981), and Flood and Marion (2002).

model explains variations in a country's reserve holdings over time, it throws little light on cross-country variations.

4. Since the international financial crises in the mid- to late 1990s, the focus has shifted to crisis prevention as a rationale for holding reserves. Reserves are considered as providing self-insurance against run-type behavior in international capital markets.⁴ This phenomenon is thought to be particularly relevant for countries with fixed or pegged exchange rates, but is not exclusively limited to these countries. Even in the case of countries with a floating rate regime, the sudden unwillingness of international lenders to renew credit lines could result in a sudden large depreciation of the exchange rate or a significant compression in imports. Reserve holdings would, in extreme circumstances, allow the market to work more smoothly and reduce the risk of such "sudden stops."⁵ The level of reserves may also have a soothing effect on the financial market, as the potential for foreign exchange intervention may reduce the willingness of financial operators to take bets on the exchange rate.

5. Empirically, three main benefits of holding reserves have been identified in recent literature:

- reserves tend to reduce the likelihood of a currency crisis;
- reserves help reduce the cost of borrowing from abroad, both for the sovereign as well as other residents; and
- reserves contribute to reducing the volatility of the real exchange rate.

Reserves tend to reduce the risk for a currency crisis

6. Bussière and Mulder (1999) find that higher levels of reserves relative to short-term debt significantly reduce the probability of a currency or balance of payments crisis. They also find reserves relative to short-term debt to be a superior crisis predictor than other reserve adequacy measures, such as the ratio of reserves to GDP or different monetary aggregates.

7. The relationship between the ratio of reserves to short-term debt and the probability of a crisis was moreover found to be highly nonlinear. Bussière and Mulder (1999) conclude that, as a rule of thumb, in countries with modest current account deficits and real exchange rates that are not significantly misaligned, a level of gross reserves equal to the stock of short-term debt is broadly consistent with avoiding contagion. They also show that, for a country with no misalignment of the real effective exchange rate and a current account deficit

⁴ See, for example, Sachs et.al. (1996)

⁵ See, for example, Calvo and Reinhart (1999).

of around 3 percent of GDP, the probability of a crisis falls to very low levels when the ratio of reserves to short-term debt reaches about 1½.

8. Similarly, Mody and Taylor (2002) find that the ratio of reserves to short-term debt plays an important role in determining the supply of international capital in all of the four countries investigated (Brazil, Mexico, Korea, and Thailand), while a higher level of reserves relative to imports has the effect of lowering the demand for international capital. Higher reserves may also serve to reduce the risk of sovereign default (Manasse and others, 2003). Caramazza, Ricci, and Salgado (2004) show that high reserves relative to short-term debt reduce the likelihood of international financial contagion.

Reserves help reduce borrowing costs

9. Some empirical literature suggests that reserves provide benefits in addition to insurance against a currency crisis. One important benefit is through lower external borrowing costs. International evidence for this was found by Christofides and others, (2003), mainly through its effect on credit ratings. Such an effect has broad economic consequences as, due to arbitrage, lower risk spread tends to be reflected in lower domestic borrowing costs.

10. For South Africa, Jonsson (2001) finds a significant impact of the NOFP on the default risk premium of foreign-currency-denominated sovereign bonds (i.e., the sovereign risk spread), even when controlling for other determinants of the risk, such as external public and domestic debt, average maturity of the debt, inflation, exchange rate depreciation, and real growth. The effect appears to be sizeable; other things being equal, a US\$1 billion increase in the NOFP is estimated to reduce the spread by around 10–15 basis points. Ahmed and Ricci (2004) derive similar results with more recent data: they estimate that a one-percentage point increase in the ratio of gross reserves to short-term debt results in a one-quarter percentage point reduction in the spread.

Reserves can contribute to reducing currency volatility

11. Figure III.3 plots reserves against currency volatility in emerging markets during 2001 and 2002.⁶ A casual observation suggests that an increase in the ratio of reserves to short-term debt is negatively related to the volatility of the exchange rate. Econometric evidence lends support to these observations. Based on panel data for a set of 28 emerging market countries, Hviding, Nowak, and Ricci (2004) find a robust relationship between the reserve adequacy and the volatility of the real effective exchange rate. This relationship holds when controlling for foreign exchange intervention.

⁶ Reserve adequacy is measured as gross reserves relative to short-term debt (RESSTD_?), while currency volatility is measured as the annual standard deviation of monthly percent changes in the real effective exchange rate (VDREER_?).

12. Such an effect could work through several different channels:

- A higher level of reserves may allow for more active intervention to stabilize the exchange rate. While the academic literature finds sterilized intervention generally ineffective,⁷ many central banks, particularly in emerging market and developing countries, resort to some form of sterilized intervention.
- The effect may be more indirect and operate through signaling the ability to use reserves at times of potential currency market pressure, even though intervention may not actually take place.
- As indicated above, Bussière and Mulder (1999) show that the probability of a currency crisis falls significantly with higher reserves as speculative attacks are less likely. Similarly, the perceived risk of default on external debt, as reflected in the sovereign risks spreads, drops when reserves rise. A lower probability of these extreme events may induce calmer trading activity and reduce exchange-rate volatility.

13. At lower levels of reserves, the estimated impact of reserves on currency volatility is large. With a ratio of reserves to short-term debt of about 70 percent, the level prevailing in South Africa at end-2003, a ten-percentage point increase in this ratio would reduce the volatility of the real effective exchange rate by about 7 percent. The impact is, however, highly nonlinear: at a reserve ratio of, say, 100 percent, the effect of the same increase would only reduce the volatility of the real exchange rate by 5 percent, and at a ratio of 150 percent, the impact would fall to about 3 percent.

14. This leads to the question of whether real exchange rate volatility has any real economic costs. Various studies on the topic reach no firm conclusion. While most research suggests that there is a significant negative relationship between exchange rate volatility and trade, this relationship is not robust to different specifications. Clark and others (2004) find that when time-varying country-specific effects are introduced in a panel regression of 107 countries, the relationship becomes small and insignificant. They also conclude, however, that effects are different across countries and are larger for developing countries than for industrial countries.

C. The Costs of Holding Reserves

15. It is assumed that the current account is unaffected by the accumulation of reserves, thereby implying that the country's net international investment position remains unchanged. The cost of holding reserves to the overall economy can be measured as the cost of external

⁷ Edison (1993), Almekinder (1995), and Baillie and others (2000). World Bank (1997) discusses the conditions under which sterilization can be effective.

borrowing (or, broadly equivalently, a reduction in external assets) for the nation (private or public sectors) net of the return on reserves.⁸ The magnitude of these costs depends on how reserves are being accumulated. If, on the one hand, reserves are being financed by official external borrowing, the costs of holding reserves can be measured as the external borrowing costs net of the expected return on reserves. If, on the other hand, reserves are accumulated as a result of purchases in the foreign exchange market, the external financing will take place in the private sector as it builds up net foreign liabilities—for example, by borrowing from abroad—in order to maintain the same level of net foreign liabilities.⁹

16. An accurate estimate of these costs is beyond the scope of this essay, since much of the data needed, such as the return on reserves, are not publicly available or are poorly measured. This section limits itself, therefore, to an illustrative calculation using South Africa's sovereign bonds (denominated in U.S. dollars) as a proxy for the nation's external borrowing costs and the six-month LIBOR as a proxy for the return on reserves.

17. The estimated costs can be decomposed into two main components: (i) "the liquidity premium" arising from the need to hold reserves in assets that are more liquid than alternative risk-free foreign currency assets, and (ii) "the credit risk premium," arising from a higher-default risk associated with the holder of the reserves, compared with the country where the reserves are invested. Figure III.4 presents three panels with estimates of these individual components as well as their sum:

18. The first panel presents an estimate of the "liquidity premium," based on the subtraction of six-month LIBOR from the yield on U.S. long-term government bonds. During 1997–2003, this premium was about 0.9 percent on average.

19. In the second panel, the "credit risk premium" was estimated by subtracting the yield on U.S. long-term government bonds from South Africa's sovereign bonds. During the same period, this premium was around 2.9 percent on average.

20. The final panel presents an estimate of the overall cost of holding reserves. This measure is equal to the sum of the two previous panels or the difference between the yield on South Africa's sovereign bonds and six-month LIBOR. From 1997 to 2003, the average cost of holding reserves was around 3.8 percent.

21. This estimate is, however, at best, a rough approximation the costs of holding reserves. First, the estimates are based on historical averages over a period with large variations in the perception of default risk and market conditions more generally. Second,

⁸ This way of looking at the calculation of the costs of holding reserves abstracts from potential effects on the real exchange rate.

⁹ Any additional cost of sterilization is just a redistribution of income from the public sector to the private sector, and does not affect the costs of the whole economy.

despite the fact that South Africa's reserves are largely held in very short term assets, six-month LIBOR is an imperfect proxy of the return on reserves as some reserves are held in longer-term assets and other currencies than the U.S. dollar. The latter bias is, however, to some extent offset by a similar bias arising from using the yield on government bonds as in a proxy for the nations' external borrowing costs.¹⁰ Third, if the financing of the reserves takes place through the reduction in foreign assets, either by the private or public sector, it may be argued that the credit risk premium is not relevant; just the opportunity cost from the loss in the investment income.

D. Conclusions

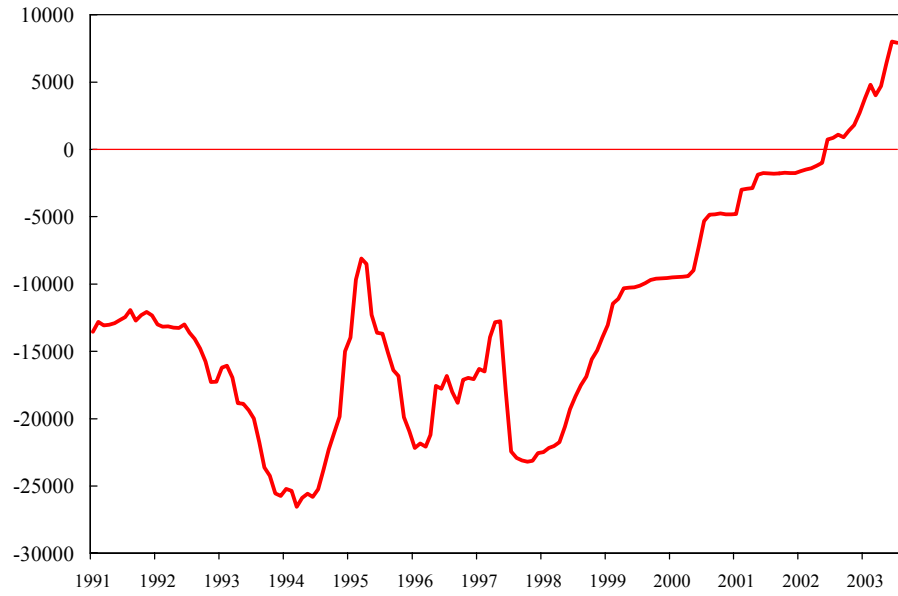
22. The appropriate reserve target depends on the perceived value of the benefits of holding reserves weighed against its costs. As shown above, the opportunity cost of holding reserves may amount to around 4 percent per annum, depending on how the reserves are invested and on the cost of external borrowing. Thus, for any additional purchase of reserves, the benefits must be considered to outweigh these costs.

23. The potential benefits of holding reserves relate to a lower probability of a currency crisis, a narrower spread on external borrowing, and reduced volatility of the exchange rate. The economic value of these benefits cannot, however, be measured, and is likely to differ across countries. International experience seems, nonetheless, to suggest that if reserves fall short of the stock of short-term external debt, the likelihood of a currency crisis and the volatility of the exchange rate increase significantly. Conversely, if the level of reserves relative to short-term debt reaches about 150 percent, a further increase seems to provide relatively few additional benefits.

24. South Africa has steadily improved its reserve position and gross reserves currently cover the stock of short-term debt. Such a position seems in the appropriate range to enable South Africa to reap the benefits of reserve holdings, while avoiding the costs of holding reserves.

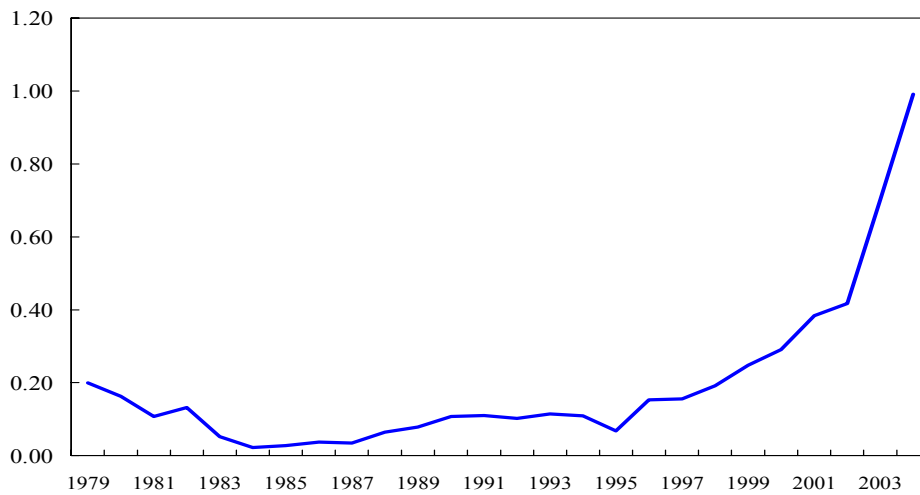
¹⁰ The yield on rand-denominated corporate bonds of some South African large corporations carries a margin of ½ to 1 percentage point over a similar rand-denominated government bond. An alternative measure of the external borrowing cost could be based on South Africa's net negative investment income as a percent of net external liabilities (using balance of payment and international investment position data). This measure would be broader in scope—as it includes both public sector and private sector liabilities—but it is very hard to measure accurately, given the existence of valuation changes and incomplete data coverage.

Figure III.1. Net Open Forward Position
(In millions of U.S. dollars)



Source: SARB

Figure III.2: Reserves to S-T Debt: 1980-2004
(Including net forward foreign exchange sales)



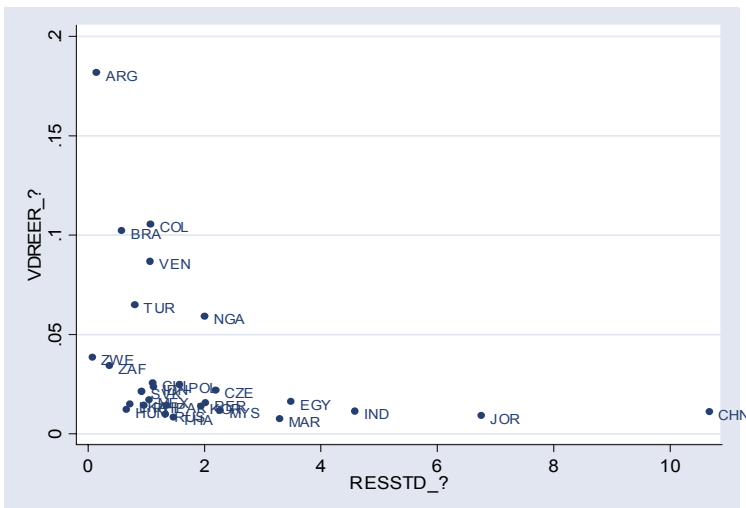
Source: SARB.

Figure III.3. Reserves to Short-Term Debt and Volatility of the Real Exchange Rate

2001

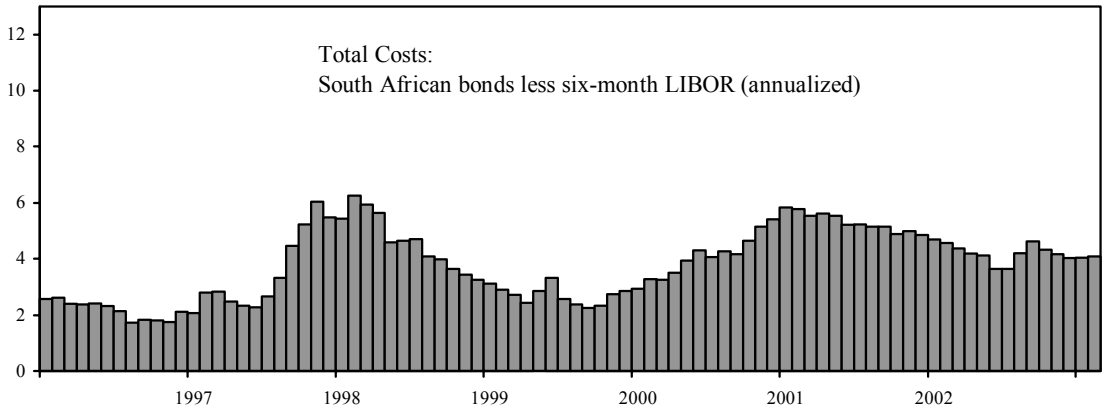
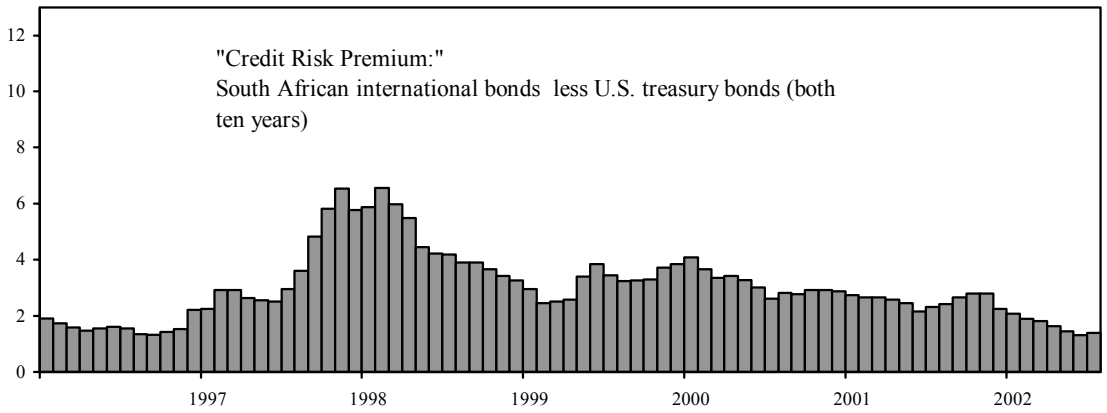
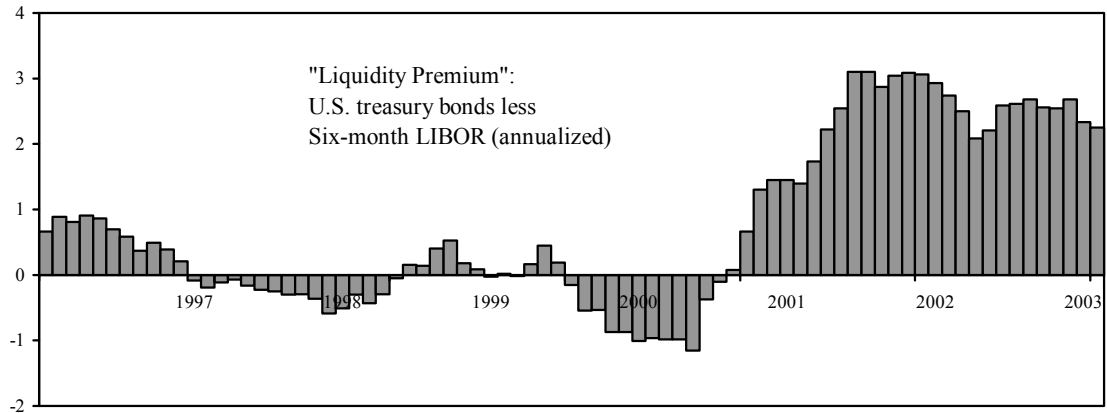


2002



Source: Staff estimates

Figure III.4. South Africa: Decomposition of the Cost of Holding Reserves, 1994-2003



References

- Ahmed F. and L. A. Ricci, 2004, "An Examination of What Determines Long-run Interest Rates in South Africa" IMF, mimeo. (Washington DC: International Monetary Fund).
- Almekinder, Geer T., 1995, *Foreign Exchange Intervention, Theory, and Evidence*, Bookfield, Vt: Edward Elgar.
- Baillie, R.T., O.F. Humpage, and W.P.Osterberg, 2000, "Intervention from an Informational Perspective," *Journal of International Financial Markets, Institutions & Money*, 10, September/December, pp. 407-423.
- Bussière, Matthieu and Christian Mulder, 1999, "External Vulnerability in Emerging Market Economies: How High Liquidity Can Offset Weak Fundamentals and the Effects of Contagion," *IMF Working Paper 99/88*, (Washington DC: International Monetary Fund).
- Calvo, Guillermo and Carmen M. Reinhart, 2000, "When Capital Inflows Come to a Sudden Stop: Consequences and Policy Options," in P. Kenen, and A. Swoboda, *Reforming the International Monetary and Financial System*, (Washington DC: International Monetary Fund).
- Caramazza, F., L. Ricci, and R. Salgado, 2004, "International Financial Contagion in Currency Crisis". *Journal of International Money and Finance*, Vol. 23, pp. 51-70.
- Christofides, C., C. Mulder, and A. Tiffin, 2003, "The Link Between Adherence to International Standards of Good Practice, Foreign Exchange Spreads, and Ratings," *IMF Working Paper*, WP/03/74. (Washington DC: International Monetary Fund).
- Clark, P., A. Sadikov, N. Tamirisia, and S-J. Wei, 2003, "Exchange Rate Volatility and Trade Flows", *mimeo*, International Monetary Fund. (Washington DC: International Monetary Fund).
- Devereux, Michael B. and Philip R. Lane, 2003, "Understanding Bilateral Exchange Rate Volatility," *Journal of International Economics*, 50, pp. 109-132.
- Edison, Hali, 1993, "The Effectiveness of Central Bank Intervention: A Survey of the Literature after 1982," Princeton University, *Special Papers in International Economics*, No. 18, July.
- Frenkel, Jacob and Boyan Jovanic, 1981, "Optimal International Reserves: A Stochastic Framework," *Economic Journal* No. 91 (June), pp. 507-14.
- Flood, Robert and Nancy Marion, 2002, "Holding International Reserves in an Era of High Capital Mobility," *IMF Working Paper*, WP/02/62. (Washington DC: International Monetary Fund).

- Jonsson, Gunnar, 2001, "The Risk Premium in South African Long-term Interest Rates," *South Africa—Recent Economic Developments*, IMF. (Washington DC: International Monetary Fund).
- Hviding, Ketil, Michael Nowak, Luca A. Ricci, 2004, "Can Higher Reserves Help Reduce Exchange Rate Volatility?" *IMF Working Paper*, forthcoming. (Washington DC: International Monetary Fund).
- Manasse, Paolo, Nouriel Roubini, and Axel Schimmelpfennig, 2003 "Predicting Sovereign Debt Crisis," *IMF Working Paper*, WP/03/221. (Washington DC: International Monetary Fund).
- Mody, Ashoka and Mark P. Taylor, 2002, "International Capital Crunches: The Time-Varying Role of Informational Asymmetries," *IMF Working Paper*, WP/02/43. (Washington DC: International Monetary Fund).
- Sachs, Jeffrey, Aaron Tornell, and Andre Velasco, 1996, "Financial Crisis in Emerging Markets: the Lessons from 1995," *Brookings Papers on Economic Activity: I*, Brookings Institution, pp. 147-215.
- World Bank, 1997, "Private Capital Flows to Developing Countries: The Road to Financial Integration", New York, Oxford University Press.

IV. FOREIGN DIRECT INVESTMENT (FDI) AND PORTFOLIO FLOWS: IS SOUTH AFRICA DIFFERENT?¹

A. Introduction

1. Over the last decade, South Africa has mobilized relatively little foreign direct investment (FDI) but has attracted considerable amounts of portfolio inflows. In 2003, FDI inflows amounted to US\$0.8 billion, compared with portfolio investments of US\$1.4 billion (SARB, 2004). This is in sharp contrast with countries with similar risk attributes, where foreign direct investment is the dominant source of capital flows. Unlike other emerging markets, the composition of capital inflows appears to be biased towards portfolio investment.²

2. Capital flows can bring substantial benefits to the host country and promote economic development (Borensztein and Lee, 1998). Different types of capital flows can have varying degrees of risks and returns, liquidity, control, and sustainability. FDI is expected to facilitate the transfer of new technology, help improve the skills of the labor force, and is generally considered to be the most resilient form of private capital flows after financial distress. In the case of portfolio investment, residents do not give up control, but sudden shifts in market sentiment can lead to large reversals of portfolio flows, which in turn can result in detrimental economic effects. This raises a number of policy questions for South Africa. Why is the composition of capital flows biased towards portfolio flows? Are there any structural or institutional characteristics of South Africa that are responsible for the composition of capital flows? Are there specific economic policies that contribute to the relatively high level of portfolio flows? What are the policies that can alter the composition of capital flows?

3. This paper builds on previous staff analysis for South Africa that examined the determinants of FDI. Arvanitis (2002) finds that the degree of infrastructure development, trade liberalization, labor skill, and potential market size are important determinants of FDI. In some of these areas, South Africa is still not at par with the performance of comparator countries, despite considerable progress during the last decade in stabilizing the economy and laying the basis for higher growth. In comparison to a group of countries with broadly similar credit risk characteristics, South Africa has lower rates of growth, trade openness, deep telecommunication infrastructure, and a lack of labor skills. These factors are seen as contributing to South Africa's limited attractiveness for FDI.

¹ This paper was prepared by Rabah Arezki, Faisal Ahmed, and Norbert Funke

² This analysis focuses on FDI, bond flows, and equity flows. Other investments, mainly bank finance, are not considered.

4. Some of the macroeconomic factors that influence FDI may also be expected to play an important role in attracting portfolio flows. Given the significance of the level and composition of capital flows, this paper seeks to:

- identify some stylized facts on capital flows to South Africa in comparison to selected emerging markets and a larger set of developing countries;
- discuss a simple framework to examine factors that are important in determining the level and composition of capital flows;
- assess the extent to which specific policies have influenced the nature and composition of capital flows.

5. The remainder of this paper is organized as follows: Section II presents some stylized facts on capital flows to South Africa. Section III provides a brief overview of the relevant theoretical and empirical considerations. Section IV discusses the determinants of capital flows and presents the empirical findings. Section V draws some policy conclusions.

B. Some Stylized Facts

6. To put developments in perspective, we compare the level and composition of capital flows to South Africa with developments in 59 countries³ and, in addition, with a smaller group of 17 emerging markets with broadly similar risk characteristics to South Africa (Box 1). The smaller sample of 17 emerging markets allows for a direct comparison of South Africa with its close competitors in the international competition for capital. The larger sample comprises 9 Asian countries, 24 African countries, 19 countries in the Western Hemisphere, and 7 other countries.

7. Capital flow data are taken from the World Development Indicators and refer to net inflows, that is gross inflows minus repatriation. Capital inflows are characterized as FDI if they lead to an acquisition of a lasting management interest (10 percent or more of the voting stock). Portfolio investment flows include portfolio debt flows (e.g., domestic bonds purchased by foreign investors) and non-debt-creating portfolio equity flows (e.g., country funds, depository receipts, and direct purchases of shares by foreign investors).

³ The selection of the countries has been dictated by data availability.

Box IV.1: Comparator Countries and Sovereign Credit Ratings

BBB+	Korea, Poland
BBB	China, Malaysia, Tunisia
BBB-	Egypt, Mexico, South Africa , Thailand
BB+	Uruguay
BB	Colombia, Costa Rica, Guatemala, India, Morocco, Panama, Philippines

Note: Ratings are Standard and Poor's sovereign ratings for long-term currency risk as of mid-2002. The list excludes newly independent European countries due to unavailability of data prior to 1992, and oil-producing small countries.

Source: Arvanitis (2002).

8. Over the period of 1994–2002, FDI in South Africa has been fairly low relatively to both the larger set of countries and the comparator countries (Table IV.1). South Africa did not benefit as much as other emerging markets from the surge in FDI to emerging markets that began in the mid-1980s. Average net inflows of FDI was only 1.5 percent of GDP, compared with 3 percent in the comparator countries. Average FDI in South Africa is even lower (0.7 percent of GDP), if the two large scale foreign investment transactions are excluded, notably the partial sale of Telkom in 1997 and the Anglo-American takeover of De Beers in 2001.

9. South Africa attracts far more portfolio investment than other emerging markets. Portfolio inflows as a percentage of GDP were twice as large as in comparator countries. The inflows were particularly strong during 1997–2000, averaging over 5 percent of GDP. This, however, partly reflects the “flight-to-quality” phenomenon in the aftermath of the Asian crisis. Portfolio inflows to South Africa coincided with portfolio outflows from East Asian and Latin American countries. Negative correlation coefficients of capital flows (both equity and bond) between South Africa and these regions validate this hypothesis.

10. Most of the portfolio flows to South Africa take the form of equity investments. Over the period 1994–2002, more than 70 percent of the portfolio flows to South Africa went into equity. In percent of GDP, South Africa attracted far more equity flows than the average comparator country. Despite the slowdown in equity inflows in the early 2000s prompted by weak stock market performance in mature economies, equity flows to South Africa remained well above levels in other developing and emerging market countries.

Table IV.1. Patterns of Capital Inflows
(In percent of GDP)

	Average 1994-2002	Average 2000-02	Change 1/ 1994-2002
FDI			
All countries	2.5	2.5	0.6
Selected countries	2.7	2.5	0.1
South Africa	1.5	2.6	2.1
Portfolio flows			
All countries	0.5	0.4	-0.3
Selected countries	1.1	0.8	-0.7
South Africa	3.6	2.6	0.8
Equity flows			
All countries	0.1	0.0	-0.3
Selected countries	0.2	0.0	-0.6
South Africa	2.5	0.7	-0.5
Bond flows			
All countries	0.3	0.4	0.0
Selected countries	0.8	0.8	-0.1
South Africa	1.0	1.9	1.3
Composition (In percent of total inflows)			
FDI share			
All countries	84.2	87.6	12.4
Selected countries	71.8	76.6	14.4
South Africa	29.8	50.3	26.9

1/ Difference between 1994-96 and 2000-02 averages.

11. As a result of the above developments, the composition of capital flows to South Africa appears to be quite the opposite of that of the emerging markets. During 1994-2002, the share of FDI in capital flows was 88 percent in the comparator countries, while the FDI share amounted to only 30 percent in South Africa. Although the FDI share in South Africa has increased to 50 percent during 2000-02, mostly due to the slowdown in equity flows, it remains well below that in comparator countries.

C. A Brief Review of the Literature

12. At least four broad approaches to explaining the level and composition of capital flows can be identified in the literature (see Lane and Milesi-Ferretti, 2000): the sovereign risk literature, the optimal portfolio choice theory, the corporate finance approach, and the pull and push factors. Against the backdrop of the debt crisis in developing countries in the early 1980s, the sovereign risk literature focused on the role of country risk in understanding the level and volatility of flows. Capital flows then were dominated by syndicated bank lending. The early contributions offered few insights, with respect to the composition of flows.

13. The portfolio diversification literature has brought the composition of capital flows to the forefront of the debate on capital movements. It highlights the risk and return aspects of foreign investment decisions and argues that the composition of capital flows is based on the optimal portfolio decision of foreign investors (Kraay and others 2000). Asymmetric information about the projects, however, adds an additional constraint to portfolio diversification.

14. The corporate finance literature highlights the role of asymmetric information, agency problems, and corporate control considerations. According to this theory, the main feature distinguishing FDI from other capital inflows is the element of control that foreign investors enjoy over a group of assets in the host country. As increased control may help alleviate the adverse consequences of asymmetric information and poor investors' rights, this strand of the literature attempts to explain why investors may prefer FDI over portfolio investment (Gordon and others, 1996; Razin and others, 1998; Albuquerque, 2003). Thus, in an economy with limited enforcement of contracts, investors may prefer FDI over portfolio investment.

15. The pull and push literature is less theoretical in nature. It tries to bring together the various investment considerations and forms the basis for many empirical analyses. It distinguishes between domestic factors (pull factors) and external factors (push factors) (e.g., Calvo and others 1993) and identifies broad categories of macroeconomic, institutional, and policy variables that have an impact on the level and composition of capital flows. While "push" factors may help to explain the timing and magnitude of the new capital inflows, "pull" factors may be necessary to explain the regional distribution of flows (Montiel and Reinhart, 1999).

16. The early empirical literature on the composition of capital flows has stressed regional differences. During the 1970s and 1980s, Latin America was often associated with short-term portfolio flows, while Asian countries attracted more FDI. Montiel and Reinhart (1999) show that regional differences have diminished over time, and that economic policies can influence the composition of capital flows. They find that capital controls alter the composition of flows, but not the volume, and that sterilized intervention can affect both the volume and composition of capital flows. Based on data from 25 transition countries, Garibaldi and others (2002) find that the determinants for FDI and portfolio flows are different. While FDI is well explained by economic fundamentals, a well-developed financial

market infrastructure and property rights indicators are the only robustly significant variables affecting portfolio investment.

17. Only a few empirical analyses focus on capital flows to Africa, and they mainly deal with FDI. Despite far-reaching reform efforts, sub-Saharan Africa's share of FDI in total flows remains low and continues to decline. Asiedu (2002) shows that a number of factors contribute to this decline. African countries tend to be less open than other emerging markets, are perceived as very risky, and despite absolute improvements in the policy environment, have lost ground relative to other regions. Rogoff and Reinhart (2003) argue that a high incidence of regional conflicts, high and volatile rates of inflation, and frequent currency crashes play an important role in explaining why Africa lags behind other regions in attracting FDI. Based on some African success stories, Basu and Srinivasan (2002) posit that political and macroeconomic stability, well-designed structural reforms, and natural resources contributed to an increase in FDI. Comparing South Africa to a group of similarly rated countries, Arvanitis (2002) finds that lower rates of growth, less trade openness, a less developed telecommunication infrastructure, and a lack of skilled labor partly explain the limited flow of FDI in South Africa. None of these studies shed any light on the forces driving portfolio flows or the composition of capital flows. In the following section, we will look at the determinants of both FDI and portfolio flows, and aim at identifying common and capital-flow-specific determinants.

D. Empirical Analyses

18. The brief literature review above suggests that capital flows are determined by relative rates of return at home and abroad, and the relative risks associated with these investments (Bhattacharya, Montiel, Sharma, 1997). We follow other empirical studies and define six broad categories of factors that influence risks and return. These are macroeconomic performance, investment environment, infrastructure and human capital, quality of institutions, financial development, and global factors. Their expected relevance is as follows:

19. **Macroeconomic performance:** A rapidly growing economy is likely to offer higher future earnings and thus higher rates of return coupled with lower risks. We use lagged GDP growth as proxy for growth prospects. The expected sign of the coefficient is positive for FDI and portfolio flows.

20. **Investment environment:** The openness of the economy, the degree of exchange rate volatility, and exchange controls are three key ingredients of the investment environment.

- In the case of FDI, investors are often interested not only in serving the local market, but also in pursuing export-oriented activities. Investors, therefore, are likely to favor

countries with a large traded-goods sector.⁴ A positive relationship between FDI and openness is well established in the literature (e.g. Asiedu, 2002; Morisset, 2000). In contrast, the relationship between portfolio flows and trade openness is less clear and the degree of trade openness may be expected to play little role. Following previous empirical studies, we use the ratio of imports and exports to GDP as a proxy for market openness.

- Exchange rate volatility increases demand uncertainty for products of export-oriented firms and may reduce the profitability of FDI. It is, therefore, expected to have an adverse impact on FDI (Goldberg and Kolstad, 1994; Kamaly, 2002). The impact on portfolio flows is less clear. Since portfolio investors with a short investment horizon may be able to easily hedge currency risk, exchange rate volatility should have little impact on portfolio investment. However, it could attract portfolio investors with higher risk tolerance and make it attractive for speculators to participate in the stock market, leading to an increase in portfolio investments. Overall, exchange rate volatility may have an asymmetric impact on foreign direct investment and portfolio flows. We use the annual standard deviation of monthly changes in the U.S. dollar local currency exchange rate as proxy for exchange rate volatility.⁵
- The effect of capital controls depends on the nature of the distortions they create (Asiedu and Lien, 2003). Export surrender requirements may reduce the return on FDI and may, in general, be expected to limit FDI flows.⁶ Capital account restrictions, if effective, are expected to limit portfolio flows. The expected sign of the coefficient is negative. Data on capital account controls are taken from the IMF's annual report on *Exchange Arrangements and Restrictions*. We use two proxies for capital controls: a dummy for export surrender requirement and a dummy for capital account restrictions.⁷ Restrictions on the unlimited use of export receipts are expected to matter for FDI, whereas capital account restrictions are expected to deter portfolio flows. In both cases, the expected sign of the coefficient is negative.

⁴ In theory, more trade restrictions could also lead to more FDI, if firms wanted to serve only the local market and hence bypass existing trade restrictions through FDI.

⁵ Nominal exchange rate variability can reflect volatility in the real effective exchange rate or be the result of high and volatile inflation in home country.

⁶ Current account restrictions may also encourage FDI flows, particularly in a large country where foreign investors want to serve the local market and circumvent existing trade restrictions.

⁷ A country is classified as having exchange restrictions as long as full liberalization has not taken place. The indicators do not capture the effects of partial liberalization.

21. **Infrastructure and human capital:** Both the quality of the infrastructure and the skill level of labor are important determinants for the attractiveness of a location.

- A well-developed infrastructure facilitates communication with parent companies abroad, the information gathering process for business, and reduces distribution costs, and thus promotes local and regional trade. In line with the literature, we use the number of telephones per 1,000 people as a proxy for infrastructure development. The expected sign of the coefficient is positive for FDI and portfolio flows, but may be less important for the latter.
- Different indicators can be used as a proxy for the skill level of the labor force. The level of literacy is one of the key factors that determine the potential for a skilled labor force. A higher literacy rate is expected to be a positive factor for FDI; it may be less important for portfolio flows.

22. **Quality of institutions:** Theoretical and empirical findings suggest that good institutions help promote capital inflows (Wei and Wu, 2001). We use a law and order index from International Country Risk Guide (published by Political Risk Services) as an indicator for the quality of the institutional environment. A country that ranks highly in terms of law and order is expected to attract more capital flows (Alfaro and others., 2003).

23. **Financial development:** Financial depth is expected to bolster capital flows. For FDI, deeper financial markets allow foreign firms to finance short and long-term transactions more easily and meet capital needs in the local market (Alfaro and others, 2003). In the case of portfolio flows, well developed financial markets appear to be a precondition for inflows (Garibaldi and others, 2002). We use domestic credit to the private sector, market capitalization of the listed companies, and the value of traded stocks as a percentage of GDP as proxies for financial development, and expect a positive relationship between financial development and capital flows, particularly for portfolio flows.

24. **Global factors:** Principal global factors are international interest rates and business cycle developments (Calvo and others, 1993). Foreign investment decisions are determined in part by their opportunity costs. The attractiveness of FDI or portfolio flows will be reduced, if international returns on investment rise. Real short-term and long-term U.S. interest rates are used as an indicator for global developments. We hypothesize that international long-term interest rates matter for FDI because of its long-term nature. For portfolio flows—a large part of which is short-term—money markets rate may play a larger role. In both cases, the expected sign of the coefficient is negative.

25. We use panel data estimation with annual variables. The dependent variable is the ratio of net FDI flows to GDP, portfolio flows to GDP, bond flows to GDP, and equity flows to GDP. The equations are estimated using generalized least squares (GLS) with White correction for heteroskedasticity and with cross-sectional fixed effects. Fixed effects reflect country-specific factors which are not captured by the other explanatory variables. Data are unbalanced and equity data are only available as of mid- to late 1980s.

26. Table IV.2 presents the regression results for (i) FDI, (ii) portfolio flows, (iii) bond flows, and (iv) equity flows based on data for up to 59 countries.⁸ Most variables have the expected signs and are significant at conventional levels. A number of explanatory variables matter both for FDI and portfolio flows and can thus be considered as common determinants. Higher growth, a better infrastructure, and a better institutional environment are conducive for FDI and portfolio inflows; they are, however, more important for FDI.

27. In general, capital controls and global developments also have a similar impact on FDI and portfolio flows. However, FDI and portfolio investors focus on different indicators in both areas. Export surrender restrictions have a negative impact on FDI, whereas capital account restrictions may hinder portfolio flows. When international interest rates decline, investors' interest in emerging markets investment tends to rise. While long-term interest rates appear to be more important for FDI, short-term interest rate developments play a key role for portfolio flows.

28. Interestingly, the results suggest that exchange rate volatility tends to have opposite effects on FDI and portfolio flows. While exchange rate volatility deters FDI, there is some evidence that the effect on portfolio flows is either insignificant or even positive.

29. Fixed effects for South Africa are significant. They are negative for FDI and positive for portfolio flows. The statistically significant negative FDI fixed effect implies that other factors not captured in our estimation render South Africa less attractive for FDI. Business surveys have identified crime (PriceWaterhouseCoopers, 2003) and the cost of capital as important constraints. The high HIV/AIDS prevalence rates and limited labor market flexibility are also expected to increase the costs of doing business in South Africa. The positive fixed effects on portfolio flows may partly reflect that the risk characteristics of South Africa differ from other emerging markets in Asia and Latin America. Portfolio inflows to South Africa in the wake of the Asian crisis provide some support to this hypothesis.

⁸ Qualitatively similar results were obtained for FDI and portfolio flows when the smaller sample of comparator countries was included in the regressions. However, not all of the coefficients were significant, reflecting a small sample size bias and low variation in some of the determinants in the sample.

Table IV.2. Capital Flows to Emerging Markets, 1984-2001

	FDI (i)	Portfolio (ii)	Bond (iii)	Equity (iv)
	GLS	GLS	GLS	GLS
Lagged GDP growth 2/	0.0232 *** (3.85)	0.004 ** (1.92)	0.0004 (0.44)	0.0160 *** (2.62)
Trade openness	0.0160 *** (5.53)			
Exchange rate volatility	-0.0111 *** (-3.51)	0.0012 ** (1.90)	0.0003 (0.93)	-0.0009 (-0.34)
Capital Account restrictions	0.0485 (0.32)	-0.1466 *** (-2.94)	-0.0718 *** (-2.76)	-0.0861 (-1.16)
Surrender of exports receipts	-0.7363 *** (-5.14)			
Telephone lines per 1,000	0.0054 *** (4.124)	0.0043 *** (4.24)	0.0050 *** (5.74)	
Literacy rate	0.0362 *** (2.70)			
Law and Order	0.0646 ** (2.07)	0.0409 *** (2.75)	0.0158 (1.43)	0.0107 (0.56)
Domestic credit to private sector, % of GDP	0.0072 *** (2.625)	0.0049 *** (2.94)	0.0064 *** (5.69)	
Capitalization of listed companies, % of GDP				0.0131 *** (4.60)
Stocks traded, % of GDP				0.0037 ** (2.26)
Real US Government bond yield (10 year)	-0.0565 ** (-2.27)			
Real US Treasury bill rate		-0.0100 ** (-2.20)	-0.0008 (-0.34)	-0.0001 *** (-4.68)
Fixed effect, South Africa	-3.1676 ** (-1.94)	2.6354 *** (2.93)	0.5469 ** (2.33)	1.0085 (1.00)
Adj R ²	0.53	0.28	0.31	0.27
Number of cross-sections used:	59	44	44	25
Number of observations	947	730	730	318

Note: White heteroskedasticity-consistent t-statistics in parentheses

The dependent variable is FDI, portfolio, bond or equity net inflows as a percent of GDP.

For regression (iv) current GDP growth.

** significant at the 5 percent significance level

*** significant at the 1 percent significance level

E. Implications for South Africa

30. The empirical findings here suggest that South Africa is indeed somewhat different from other emerging markets. The level of total capital inflows to South Africa is similar to that in comparator countries. However, the composition differs. South Africa attracts relatively modest FDI and much more portfolio inflows than comparator countries. Part of this difference may relate to regional risk factors that are different from those in Asia and Latin America. However, the results also suggest that a number of policy variables contribute to the relatively lower share of FDI and higher share of portfolio flows.

31. Despite extensive trade liberalization undertaken since the early 1990s, South Africa still appears less open than its major competitors. The ongoing review of the Department of Trade and Industry provides an excellent opportunity for a further simplification of the tariff regime. Additional trade liberalization should help increase the attractiveness of South Africa for FDI. South Africa also scores lower than its major competitors in terms of growth, infrastructure, and law and order. Improvements in these areas would also be beneficial for attracting FDI (Table IV.3).

Table IV.3. Determinants of Capital Flows: Performance Comparison Across Countries

Factors	Proxies used	Average 1994-2002			Change 1994-2002 1/		
		All countries	Comparator countries	South Africa	All countries	Comparator countries	South Africa
1. Macro performance	GDP growth (in percent)	3.5	4.0	2.8	-1.6	-2.3	-0.4
2. Investment environment	Trade openness (in percent of GDP)	65.7	71.2	51.0	3.7	11.6	13.9
	Exchange rate volatility (std dev)	2.5	1.8	2.9	0.0	0.2	2.0
	Surrender of export receipts index	0.7	0.7	1.0	-0.2	-0.1	0.0
	Capital account restriction index	0.6	0.5	1.0	-0.2	-0.1	0.0
3. Infrastructure and human capital	Telephone density (per 1000 people)	73.0	132.8	110.7	29.4	51.9	8.7
	Literacy rate (in percent of 15-24 age)	84.1	90.1	90.7	4.4	2.6	1.6
4. Quality of institutions	Law and order index	3.5	3.9	2.8	-0.5	-0.6	-1.9
5. Financial development	(In percent of GDP)						
	Stock market capitalization	34.2	36.3	157.7	23.4	-9.0	-35.2
	Value of traded stock	13.2	23.8	40.9	-22.7	6.4	51.8

1/ Difference between 1994-96 and 2000-2002 averages.

32. The results also suggest that lower currency volatility would contribute to an increase in the share of FDI and possibly to a relative decline of portfolio flows. The volatility of rand is among the highest in emerging markets. The South African Reserve Bank (SARB) has recently closed its open position in the forward market—long a source of external vulnerability—and increased its net international reserves. Compared with other emerging market economies, South Africa's foreign reserves, however, remain low. Recent staff research has demonstrated that an increase in reserve can reduce exchange rate volatility

through the signaling effect (Hviding and others, 2003). A further increase would likely help reduce currency volatility.

33. Over the last ten years, South Africa has gradually relaxed capital controls, but some controls remain, including the requirement for exporters to repatriate their foreign exchange earnings within six months. The results suggest that these types of requirements deter FDI. The present strength of the rand may present an opportune time to move ahead in further easing capital controls.

34. Overall, the results suggest that the depth and liquidity of financial markets in South Africa is a primary determinant of its attractiveness for portfolio inflows. The relatively low share of FDI can be addressed in part by government policies. Further trade and capital account liberalization should help promote FDI. A reduction in exchange rate volatility would most likely also lead to changes in the composition of capital flows and increase the relative share of FDI. A continuation of the process of reserve accumulation, at a pace dictated by prevailing market conditions, should be instrumental in this regard.

List of Countries included in this Study

North Africa and CFA	Sub-Saharan Africa non-CFA	Asia	Other	Western Hemisphere
Algeria	Botswana	China,P.R.: Mainland	Egypt	Argentina
Morocco	Ethiopia	India	Iran, I.R. of	Bolivia
Tunisia	Ghana	Indonesia	Israel	Brazil
Burkina Faso	Kenya	Malaysia	Jordan	Chile
Cameroon	Malawi	Pakistan	Kuwait	Colombia
Congo, Republic of	Mozambique	Philippines	Syrian Arab Republic	Costa Rica
Côte d'Ivoire	Nigeria	Sri Lanka	Turkey	Dominican Republic
Mali	South Africa	Thailand		Ecuador
Niger	Sudan	Vietnam		El Salvador
Senegal	Tanzania			Guatemala
Togo	Uganda			Haiti
	Zambia			Honduras
	Zimbabwe			Jamaica
				Mexico
				Nicaragua
				Paraguay
				Peru
				Uruguay
				Venezuela
Number of countries:				
11	13	9	7	19

References

- Albuquerque, Rui (2003), "The Composition of International Capital Flows: Risk-Sharing Through Foreign Direct Investment," *Journal of International Economics*, Vol. 61, No. 2: 353-383, December.
- Alfaro, Laura, Sebnem Kalemli-Ozcan, and Vadym Volosovych, 2003, "Why doesn't Capital Flow from Rich to Poor Countries? An Empirical Investigation," mimeo, December.
- Arvanitis, Athanasios (2002), "Determinants of Foreign Direct Investment in South Africa," Selected Issues Paper, IMF Country Report No. 03/18, pp. 75-83, (Washington: International Monetary Fund)
- Asiedu, Elizabeth, 2002, "On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?," *World Development*, Vol. 30, No. 1, pp. 107-119.
- _____ and Donald Lien, 2003, "Capital Controls and Foreign Direct Investment," University of Kansas, unpublished.
- Borensztein, E., J Gregorio, and J. Lee, 1998, "How does foreign investment affect growth?" *Journal of International Economics*, 45.
- Basu, Anupam and Krishna Srinivasan, 2002, "Foreign Direct Investment in Africa – Some Case Studies," IMF Working Paper 02/61, March (Washington: International Monetary Fund)
- Bhattacharya, Amar, Peter Montiel, and Sunil Sharma, 1997, "Private Capital Flows to Sub-Saharan Africa: An Overview of Trends and Determinants," in Zubair Iqbal and Ravi Kanbur, eds., *External Finance for Low-Income Countries*, pp. 207–232 (Washington: International Monetary Fund).
- Calvo, Guillermo, Leonardo Leiderman and Carmen Reinhart, 1993, "Capital Inflows and Real Exchange Rate Appreciation in Latin America: The Role of External Factors," *International Monetary Fund Staff Papers* 40, March, 108-51.
- Garibaldi, Pietro, Nada Mora, Ratna Sahay, and Jeromin Zettelmeyer, 2002, "What Moves Capital to Transition Economies," IMF Working Paper 02/64, April (Washington: International Monetary Fund).
- Goldberg, Linda and Charles Kolstad, 1994, "Foreign Direct Investment, Exchange Rate Variability, and Demand Uncertainty," NBER Working Paper No. 4815, August (Cambridge, Massachusetts: National Bureau of Economic Research).

- Gordon, Roger, and A. Lans Bovenberg, 1996, "Why is Capital So Immobile Internationally? Possible Explanations and Implications for Capital Income Taxation," *American Economic Review*, Vol. 86, No. 5, pp. 1057-1075.
- Hviding, Ketil, Michael Nowak, and Luca Ricci, 2004, "Can Higher Reserves Help Reduce Exchange Rate Volatility?" IMF Working Paper, forthcoming (Washington: International Monetary Fund)
- Kamaly, Ahmed, 2002, "Behind the Surge in FDI to Developing Countries in the 1990s: An Empirical Investigation," Ph.D. thesis, University of Maryland.
- Kraay, Aart, Normal Loayza, Luis Servén, and Jaume Ventura, "Country Portfolios," NBER Working Paper 7795, July (Cambridge, Massachusetts: National Bureau of Economic Research).
- Lane, Philip and Gian Maria Milesi-Ferretti, 2000, "External Capital Structure: Theory and Evidence," IMF Working Paper 00/152, (Washington: International Monetary Fund)
- Montiel, Peter and Carmen M. Reinhart, 1999, "Do Capital Controls and Macroeconomic Policies Influence the Volume and Composition of Capital Flows? Evidence from the 1990s," *Journal of International Money and Finance*, Vol. 18, pp. 619–635.
- Morisset, Jacques, 2000, "Foreign Direct Investment in Africa: Policies Also Matter," Policy Research Working Paper No. 2481, November (Washington: The World Bank and the International Finance Corporation)
- PriceWaterhouseCoopers, 2003, "Global Economic Crime Survey: South Africa"
- Razin, Assaf and Efram Sadka, and Chi-Wa Yuen, 1998, "A Pecking Order of Capital Inflows and International Tax Principles," *Journal of International Economics*, Vol. 44, pp. 45-68
- Rogoff, Kenneth and Carmen Reinhart, 2003, "FDI to Africa: The Role of Price Stability and Currency Instability," IMF Working Paper 03/10, January (Washington: International Monetary Fund)
- South African Reserve Bank (SARB), 2004, Quarterly Bulletin, June.
- Wei, Shang-Jin, and Yi Wu, 2001, "Negative Alchemy? Corruption, Composition of Capital Flows, and Currency Crises," NBER Working Paper 8187, March (Cambridge, Massachusetts: National Bureau of Economic Research).
- World Bank, 2004, World Development Indicators, (Washington, D.C.: World Bank).

V. WHAT DETERMINES FLUCTUATIONS IN SOUTH AFRICAN MANUFACTURING OUTPUT?¹

A. Introduction

1. Over recent decades, South African manufacturing output has exhibited a strong pro-cyclical pattern over the business cycle. Though its relative importance in total output declined slightly (Figure 1), the manufacturing sector remains an important sector in the South African economy, contributing about 18 percent to total GDP in constant prices in 2003. Since the mid-1990s, the long-run trend in total output and manufacturing output growth picked up significantly due to broad economic and structural reforms following the end of apartheid and successful stabilization efforts. However, manufacturing output remained very volatile and annual growth rates of quarterly manufacturing output fluctuated strongly.² These sharp fluctuations raise the question of what are the underlying sources of variation in manufacturing output.

2. This section finds that deviations of manufacturing output from trend are strongly driven by domestic and global demand conditions. Relative price factors, as captured by real exchange rate movements do not seem to have had a large impact on fluctuations of manufacturing output during the 1980s. However, more recently, real exchange rate changes do appear to have had a significant impact on manufacturing output, reflecting the greater trade openness and increased exposure to international competition. The structure of the section is as follows; Subsection B provides a description of the evolution of manufacturing output, domestic and foreign demand, and CPI and unit labor cost (ULC) based real exchange rate measures and their trend and cyclical components, and discusses their main descriptive statistics. Subsection C presents the econometric methodology, estimation results, and concludes.

B. Empirical Evidence

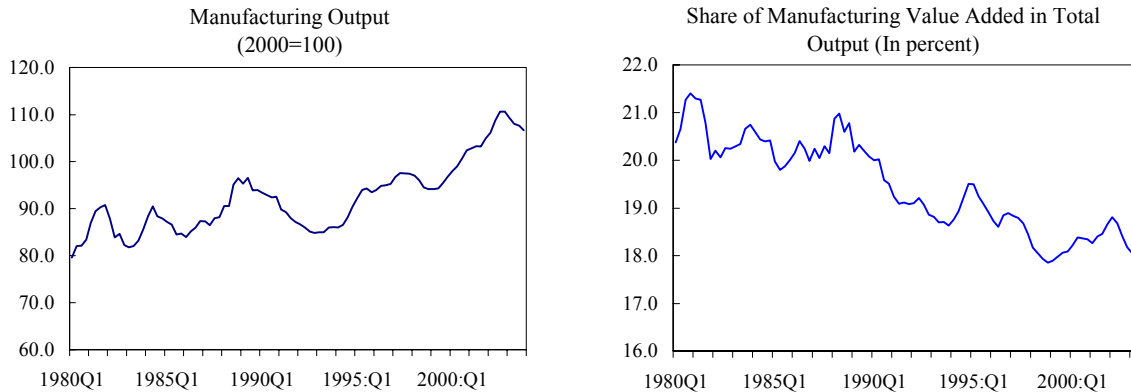
3. While manufacturing output grew by about 1.9 percent on average during 1980–2003, year-on-year quarterly growth rates fluctuated widely from negative 9 to 11 percent. Growth in manufacturing output picked up in the mid-1990s, reflecting the transition to a higher growth path of total output (Figure V.1). Following the end of the apartheid regime, sustained higher growth was achieved through wide-ranging economic and structural reforms and successful macroeconomic stabilization. High growth in total factor productivity (TFP), which in turn seems to have been driven by greater trade openness and private-sector participation in the economy, has been the main cause of the recent growth performance in South Africa. Jonsson and Subramanian (2000) estimate that trade

¹ Prepared by Thomas Harjes.

² In this section, manufacturing output refers to the real value added of the manufacturing sector in the national accounts.

liberalization may have accounted for up to 90 percent of actual TFP growth during the 1990s. Any model that aims to explain the dynamics of manufacturing over time would need to take into account these factors, in addition to other input factors of manufacturing production and relative cost-and-demand factors. In this section, the focus is on short- to medium-run dynamics of manufacturing output and, therefore, the analysis is confined to identifying those variable that have a strong impact on these dynamics.

Figure V.1: The Evolution of Manufacturing Output in South Africa During 1978-2003



Source: South African Reserve Bank.

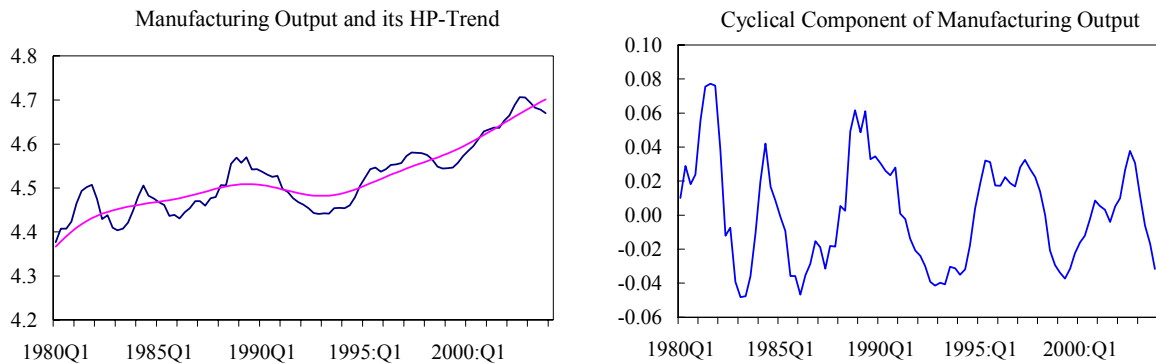
4. The trend and cyclical components of manufacturing output are determined by applying a Hodrick-Prescott (HP) filter, a commonly used method for identifying cyclical components of macroeconomic time series (Figure V.2). The cyclical component represents variation above business cycle frequency. King and Plosser (1993) provide a detailed discussion of the HP-filter and its properties. Applying a HP-filter (with the main parameter $\lambda=1600$) to quarterly data is similar to first differencing the data and then applying a band pass filter that eliminates all variation with a periodicity greater than eight years. According to this procedure, over the past ten years, manufacturing output growth exceeded its trend during 1995Q1 to 1998Q2 and during 2000Q3 to 2003Q1, with the exception of 2001Q3, before slowing significantly during the remainder of 2003.

5. Following the literature, the set of variables that can potentially explain fluctuations in manufacturing output includes foreign and domestic demand and various exchange rate measures.³ Most of South Africa's exports of manufactured goods are sold in Europe and other advanced economies. Global demand conditions or foreign demand for South African manufactured goods is, therefore, approximated as a weighted average of total domestic demand in South Africa's main advanced trading partner countries. Total domestic demand

³ For the remainder of this section, domestic and foreign demand, manufacturing output and real exchange rates refer to their cyclical components unless otherwise noted.

is measured as the sum of total consumption and investment in South Africa. Real exchange rate measures based on consumer price indices (CPI) and on unit labor costs (ULC) are employed as possible indicators of short-run changes in South Africa's international competitiveness position. The weights used to calculate real exchange rates and foreign demand correspond to each country's share in South Africa's total exports to its main trading partners.

Figure V.2: The Trend and Cyclical Components of Manufacturing Output



Source: South African Reserve Bank, and staff calculations.

Note: Variables are in logarithms. The cyclical component is the difference between actual data and trend.

6. Compared to real exchange rates based on consumer price indices, measures based on unit labor cost better indicate developments in relative production costs of internationally traded, manufactured goods.⁴ A rise in unit labor costs in the South African manufacturing sector, relative to its main trading partners, makes production in South Africa more expensive than in those countries and may thus force companies to reduce production, if they lose the market share, or to exit markets. In contrast, an increase in the CPI-based real exchange rate could reflect a rise in the relative price of nontraded goods with little impact on manufacturing production costs if the input of nontradables into manufacturing production is low.

7. Manufacturing output is strongly correlated with foreign and domestic demand (Table V.1). The correlation with the highly volatile ULC-based real exchange rate is negative and relatively low, while the correlation with the CPI-based real exchange rate is

⁴ Unit labor costs in South Africa and its main advanced trading partners reflect costs in the respective manufacturing sectors. See Marsh and Tokarick (1994), and Lipschitz and McDonald (1991) for a comprehensive discussion of various exchange rate measures as indicators of competitiveness.

virtually zero.⁵ The difference between the CPI- and ULC-based exchange rates is relatively small (Figure 3) and, accordingly, the correlation of the cyclical components of these measures turns out very high in both samples. This fact could imply that much of the short-run variability in both real exchange rates is actually driven by changes in the nominal exchange rate. The positive—but low—correlation between the domestic and foreign demand components indicates that South Africa’s business cycle is only weakly synchronized with those of its main trading partners.

Table V.1: Standard Deviations and Cross-Correlations of Cyclical Components

	Manufact. Output	CPI-based REER	ULC-based REER	Domestic Demand	Foreign Demand
Standard Deviation (in percent)	2.95	8.40	10.07	2.77	0.80
	Cross-Correlations				
Manufacturing Output	1.00	-0.03	-0.18	0.80	0.34
CPI-based REER	-0.03	1.00	0.94	0.12	-0.04
ULC-based REER	-0.18	0.94	1.00	0.01	-0.08
Domestic Demand	0.80	0.12	0.01	1.00	0.20
Foreign Demand	0.34	-0.04	-0.08	0.20	1.00

Sources: South African Reserve Bank and International Financial Statistics (IMF); and staff calculations.
 Note: Cyclical components are calculated as the difference between variables (in logarithms) and their HP-trends, 1980Q1-2003Q4.

C. Estimation Procedure and Results

8. Simple econometric models find a statistically significant impact of foreign and domestic demand and relative unit labor costs on manufacturing output for the entire sample (see, Table V.2). The impact of ULC-based real exchange rate is relatively small, and in a model (Model 4 in Table V.2) in which the ULC-based real exchange rate is replaced with the CPI-based measure, the coefficient is statistically insignificant. However, statistical tests cannot reject the hypothesis that a structural break occurred in the beginning of the 1990s.

9. In a model that splits the ULC-based real exchange rate into two variables that assume zero values for the periods 1980Q1-1989Q4 and 1990Q1-2003Q4, respectively, the ULC-based exchange rate only turns out to be significant for the latter period, and the

⁵ Jaeger (1994), and Cogley and Nason (1995) have shown that, under certain conditions, HP-filtering can induce spurious correlations, especially if the time series are nonstationary. However, differencing the data first produces the same qualitative results.

estimated coefficient is much larger compared to the coefficient that was estimated for the entire sample.⁶

10. In this model (Model 5 in Table V.2), a one percent increase of the ULC-based real exchange rate now triggers a 0.06 percent fall in manufacturing output below trend, compared to -0.02 during the 1980s, while a one-percent rise of foreign or domestic demand above trend causes a contemporaneous increase in manufacturing output of 1.1 or 0.3 percent above its trend value. The coefficient of the first-order autoregressive term for the residual, which is 0.75, indicates that the response of manufacturing to shocks is relatively sluggish. Even though the real exchange rate measures are much more volatile than foreign and domestic demand, the above coefficients imply that much variability in manufacturing output is caused by changes in foreign and domestic demand.

11. To better quantify the individual impact of the determinants on fluctuations in manufacturing output, measures (modified R-squared) are calculated assuming each determinant were the only variable contributing to variations. While domestic demand would account for about 38 percent of fluctuations in manufacturing output and foreign demand for about 11 percent, the ULC-based real exchange rate would only account for about 7 percent. Figure 3 shows the isolated impact of movements in the demand and real exchange variables on deviations of manufacturing output from trend, actual, and fitted values of the cyclical component of manufacturing output.

12. The sharp appreciation of the real exchange rate indicators during 2002 and 2003 following the rand crisis in the fourth quarter of 2001 may have depressed manufacturing output by up to 3 percent. While the real exchange rate measures were about 25 percent below trend in the first quarter of 2002, they were about 20 percent above trend in the fourth quarter of 2003 (see Figure V.4).⁷ These deviations drove manufacturing output about 1½ percent above trend and then later 1½ percent below trend.

13. This section found a strong impact of domestic and foreign demand on the cyclical component of manufacturing output. Real exchange rate measures, including relative unit labor costs, are estimated to have a smaller impact. However, there is evidence that the impact of the real exchange rate on manufacturing output has increased since the beginning of the 1990s. The sharp depreciation at the end of 2001 is estimated to have pushed manufacturing output above trend by up to 1½ percent in early 2002. Since then, the subsequent appreciation of the ULC-based real exchange rate may have depressed

⁶ Similar experiments with the domestic and foreign demand variables did not indicate any further structural changes.

⁷ It is important to note that the above-mentioned trend is purely defined in a statistical sense by the trending method (i.e. the HP-filter) and does not reveal anything about real exchange rate equilibrium values in regard to economic fundamentals.

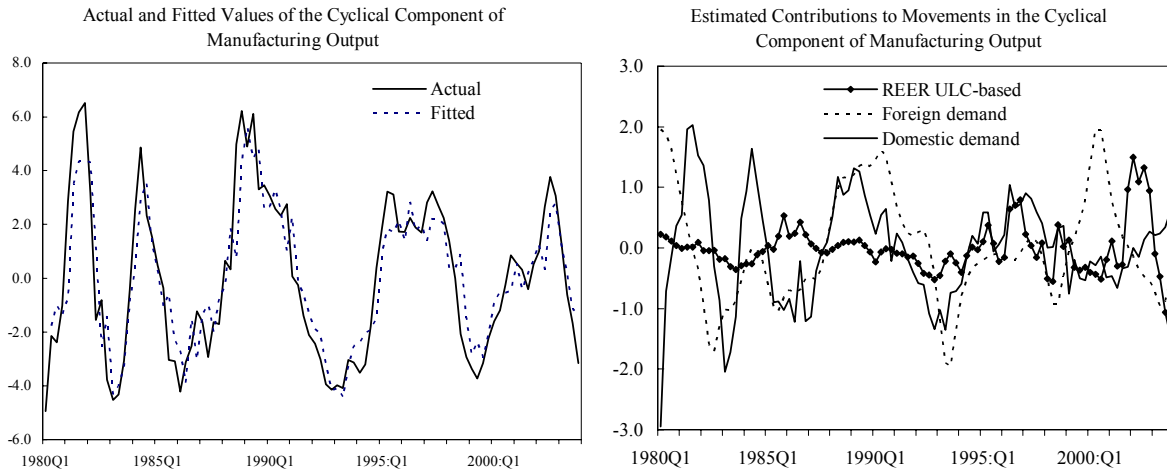
manufacturing output by up to 3 percent. Finally, the highly aggregated nature of the data requires a cautious interpretation of these results. On the individual firm level, output adjustment can take place by changing firm-individual output or by enter and exit decisions of firms. To achieve a more coherent picture of the change in manufacturing output, firm level data would offer a much richer picture and would also allow for better analysis of the impact of demand and exchange rate changes on profits and employment, pointing the way for further research

Table V.2: Determinants of Fluctuations in Manufacturing Output, 1980-2003

	CPI-REER	ULC-REER	Domestic Demand	Foreign Demand	AR(1)
Model 1	-	-0.049 (0.017)	0.812 (0.062)	0.616 (0.216)	-
Model 2	-0.042 (0.021)	-	0.824 (0.064)	0.643 (0.221)	-
Model 3	-	-0.038 (0.022)	0.304 (0.091)	1.098 (0.509)	0.766 (0.068)
Model 4	-0.007 (0.025)	-	0.312 (0.091)	1.060 (0.523)	0.777 (0.068)
	ULC-REER (1)	ULC-REER (2)	Domestic Demand	Foreign Demand	AR(1)
Model 5	-0.016 (0.031)	-0.061 (0.031)	0.309 (0.091)	1.140 (0.504)	0.749 (0.071)
	CPI-REER (1)	CPI-REER (2)	Domestic Demand	Foreign Demand	AR(1)
Model 6	0.016 (0.034)	-0.039 (0.038)	0.315 (0.092)	1.08 (0.518)	0.765 (0.070)

Note: The dependent variable is the cyclical component of manufacturing. Standard errors are in parentheses. Model 1 and 2 are estimated using OLS. However, the residuals of these regressions are serially correlated. The models are, therefore, reestimated including an autoregressive first-order process for the original residual. Marquardt's nonlinear least squares algorithm is used to estimate Models 3, 4, 5 and 6. In Model 5, ULC-REER(1) is set equal to ULC-REER for the period 1980Q1-1989Q4 and set equal to zero for the remainder of the sample, while ULC-REER(2) is set equal to zero for the former period and set equal to ULC-REER for the latter period. In Model 6, the same procedure has been applied to CPI-REER.

Figure V.3. Estimates of the Cyclical Component of Manufacturing, 1980-2003



Sources: South African Reserve Bank; and Fund staff calculations and estimates.

Variables: Definitions and Source

The dataset consists of quarterly data from 1980 to 2003 for South Africa and its main trading partners. Data series for unit labor costs in manufacturing, manufacturing value added, gross domestic product, total consumption and total investment are from the South African Reserve Bank, *Quarterly Bulletin*. Data series for the CPI-based real effective exchange rate and unit labor costs in manufacturing, as well as total domestic demand, of South Africa's main trading partners is from IFS.

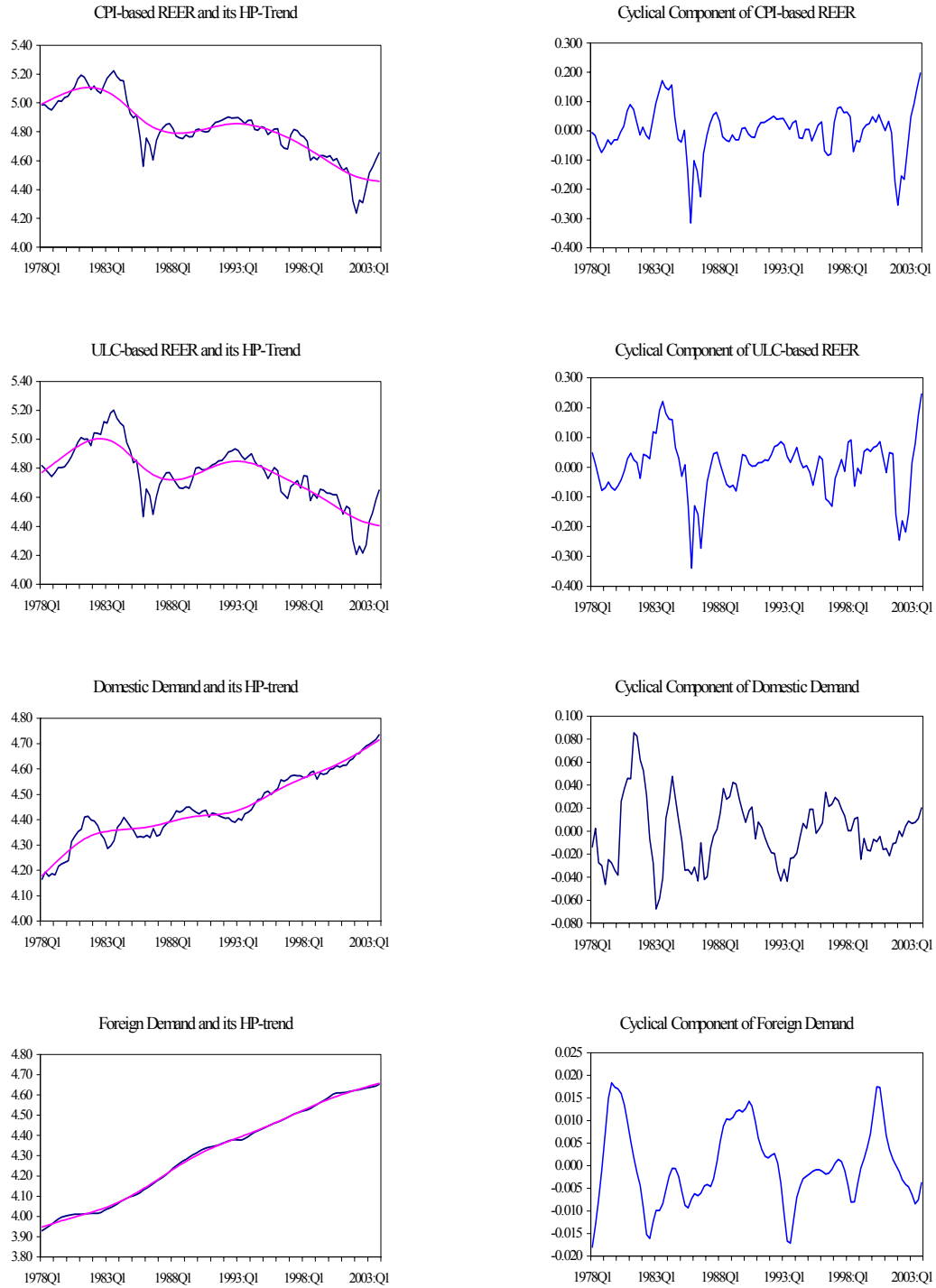
Domestic demand is defined as the sum of total investment and total consumption.

Foreign demand is defined as a weighted average of real total domestic demand in South Africa's main advanced trading partner countries

The ULC-based real effective exchange rate is defined as unit labor costs (manufacturing) in South Africa relative to a geometrically weighted average of unit labor costs (manufacturing) in its main trading partners' countries all measured in U.S. dollars.

The main trading partners include Germany (0.22), United States (0.16), Japan (0.15), United Kingdom (0.12), Italy (0.09), France (0.07), Belgium (0.04), Netherlands (0.04), Switzerland (0.03), Canada (0.02), Spain (0.02), Australia (0.02) and Sweden (0.01). Relative weights used to calculate the ULC-based real exchange rate are in parenthesis.

Figure V.4. Trends and Cyclical Components of the Main Determinants of Fluctuations in Manufacturing Output



Sources: South African Reserve Bank and International Financial Statistics (IMF); and staff calculations.
Note: All Variables are in logarithms. The cyclical components measure deviations from trend in percent.

References

- Cogley, Timothy and James Nason, 1995, "Effects of the Hodrick-Prescott Filter on Trend and Difference Stationary Time Series: Implications for Business Cycle Research", *Journal of Economic Dynamics and Control*, Vol. 19: 253-78.
- Jaeger, Albert, 1994, "Mechanical Detrending by Hodrick-Prescott Filtering: A Note", *Empirical Economics*, Vol. 19: 493-500.
- Jonsson, Gunnar and Arvind Subramanian, 2000, "Dynamic Gains from Trade: Evidence from South Africa", IMF Working Paper, 00/45 (Washington; International Monetary Fund).
- King, Robert and Sergio Rebelo, 1993, "Low Frequency Filtering and Real Business Cycles", *Journal of Economic Dynamics and Control*, Vol. 17: 207-31.
- Lipschitz, Leslie and Donogh McDonald, 1991, "Real Exchange Rates and Competitiveness: A Clarification of Concepts, and Some Measurements for Europe", IMF Working Paper, 91/25 (Washington: International Monetary Fund).
- Marsh, Ian and Stephen Tokarick, 1994, "Competitiveness Indicators: A Theoretical and Empirical Assessment", IMF Working Paper, 94/29 (Washington: International Monetary Fund).

South Africa: Tax Summary as of June 2004¹
(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates																		
1. Taxes on income, profits, and capital gains																					
1.1. <u>Individual income tax</u>																					
Income Tax Act No. 58 of 1962, as amended	<p>A central government tax is charged on taxable income, assessed as gross income less exemptions and deductions, received by South African residents on their worldwide income, with relief for the avoidance of double taxation.² Non-residents working in South Africa for short periods are liable for tax in South Africa, in respect of their South African source income, with relief for the avoidance of double taxation.</p> <p>As of February 2004, comprehensive agreements for avoidance of double taxation on the same income were in force with 55 countries, with agreements under negotiation or in the process of signing or ratification with 34 other countries.</p> <p>Cash allowances and non-cash fringe benefits are subject to taxation according to formulas, including employer-owned vehicles, interest free or low interest loans, and residential accommodation.</p> <p>Wage and salary earners are subject to withholding at the source (pay-as-you-earn, PAYE). Income tax returns must be submitted</p>	<p>Exemptions are the first R 11,000 of taxable interest and dividends for taxpayers under 65 years of age and R 16,000 of taxable interest for taxpayers age 65 and over. Dividends from resident companies received by residents and non-residents are generally exempt from tax. Foreign interest and foreign dividends are only exempt up to R 1,000 out of the total exemption. Interest is exempt where earned by non-residents who are absent from South Africa for 183 days or more per annum and who are not carrying on business in South Africa.</p> <p>Other exemptions include: (i) benefits payable under the Unemployment Insurance Act, and (ii) leave gratuities on retirement/retenchment up to R 30,000.</p> <p>Deductions are allowed for</p> <p>(i) Annual contributions to pension and retirement funds (the greater of R 1,750 or 7½ percent of remuneration from retirement funding employment);</p> <p>(ii) Arrear pension fund contributions (up to a maximum of R 1,800 per annum; any excess over R 1,800 may be carried forward to the following year of assessment);</p> <p>(iii) Retirement annuity fund contributions (up to</p>	<p>For the year of assessment ending February 28, 2005, the following applies:</p> <p>Tax thresholds: Below age 65: R 32,222 Age 65 and over: R 50,000</p> <p>Rebates (deductible from normal tax determined on taxable income):</p> <p>Primary rebate: R 5,800 Additional rebate: R 3,200 (persons 65 years and older).</p> <p>Tax is calculated on the taxable income of any person under 65 years of age in accordance with the table below:</p> <table border="1"> <thead> <tr> <th>Taxable Annual Income (In Rand)</th> <th>Marginal Tax Rates (In percent)</th> <th>Average Tax Rates (In percent)</th> </tr> </thead> <tbody> <tr> <td>0 to 32,222</td> <td>0</td> <td>0</td> </tr> <tr> <td>32,223 to 74,000</td> <td>18</td> <td>5.1</td> </tr> <tr> <td>74,001 to 115,000</td> <td>25</td> <td>12.8</td> </tr> <tr> <td>115,001 to 155,000</td> <td>30</td> <td>17.3</td> </tr> <tr> <td>155,001 to 195,000</td> <td>35</td> <td>20.8</td> </tr> </tbody> </table>	Taxable Annual Income (In Rand)	Marginal Tax Rates (In percent)	Average Tax Rates (In percent)	0 to 32,222	0	0	32,223 to 74,000	18	5.1	74,001 to 115,000	25	12.8	115,001 to 155,000	30	17.3	155,001 to 195,000	35	20.8
Taxable Annual Income (In Rand)	Marginal Tax Rates (In percent)	Average Tax Rates (In percent)																			
0 to 32,222	0	0																			
32,223 to 74,000	18	5.1																			
74,001 to 115,000	25	12.8																			
115,001 to 155,000	30	17.3																			
155,001 to 195,000	35	20.8																			

¹ Updated by M. Horton, Fiscal Affairs Department, June 2004. For further information, see <http://www.sars.gov.za> or <http://www.treasury.gov.za>.

² The worldwide basis for income taxation was introduced from January 1, 2001.

South Africa: Tax Summary as of June 2004¹

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
	<p>at the end of the tax year for salaried persons whose net remuneration is in excess of R 60,000. From March 1, 2002, directors of private companies were made subject to PAYE, according to a formula for withholding.</p>	<p>the greater of 15 percent of non-retirement funding income or R 3,500 less current deductions to a pension fund, or R 1,750.</p>	24.6
	<p>Standard Income Tax on Employees (SITE) falls under the PAYE system; SITE is applicable to net remuneration up to R 60,000 for taxpayers who do not receive travel allowances or any other income. SITE taxpayers are not required to submit income tax returns.</p>	<p>(iv) Medical expenses (with deduction ceilings depending on age and physical status as handicapped. Deductions are unlimited for taxpayers over 65 years of age); and (v) Donations to approved non-profit organizations (up to 5 percent of taxable income before deducting medical expenses).</p>	38 40
	<p>In the case of other individuals, provisional payments are required in two half yearly instalments. Provisional taxpayers with a taxable income exceeding R 50,000 may make a third voluntary payment. Individuals below the age of 65 who earn taxable non-employment income of less than R 10,000 a year are not required to register for provisional tax purposes. Individuals age 65 and older are not required to register for provisional tax purposes, if their annual taxable income consists exclusively of remuneration, interest, dividends or rent from the lease of fixed property and is R 80,000 or less.</p>	<p>Allowances are made in respect of subsistence and traveling allowances and advances.</p>	
	<p>Pensions from South African sources are subject to income tax, with the exception of pensions of war veterans and certain disability payments. Pension fund administrators are required to withhold tax at the source (PAYE). Annuities, rental income, and royalties are taxable.</p>	<p>A separate rate of 40 percent applies to trusts, other than special trusts. A special trust is a trust created solely for the benefit of a person who suffers from any mental illness or a serious physical disability.</p>	24.6

South Africa: Tax Summary as of June 2004¹

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
1.2. <u>Capital gains tax</u> Income Tax Act No. 58 of 1962, as amended	Capital gains on the disposal of assets are subject to income tax (Schedule 8 of the Income Tax Act). ³ Events that trigger a disposal of assets include a sale, donation, exchange, loss, death and emigration. Non-residents are subject to capital gains tax on South African real estate and shares in companies holding South African real estate.	Exclusions include: a gain of up to R 1 million from the sale of a primary residence; most personal use assets, such as motor vehicles, furniture and collectibles; proceeds from an endowment policy or life insurance policy; compensation for personal injury or illness; and prize winnings from a South African competition (e.g., the national lottery).	For the taxation of capital gains of individuals and special trusts, 25 percent of the net capital gain is included when calculating the tax payable (after deducting the annual exclusion). For companies, close corporations and trusts, 50 percent of the net capital gain is included. The taxable gain is included in taxable income.
1.3. <u>Corporate income tax</u> Income Tax Act No. 58 of 1962, as amended	A central government tax levied on the worldwide taxable income derived by South African resident companies, with appropriate relief to avoid double taxation. Taxable income is defined as gross income, other than capital receipts and exempt income, less allowable deductions and set off of losses. The tax year of assessment is the accounting year. Companies with taxable income in excess	Deductions include normal operating costs, interest and depreciation allowances but exclude dividends and capital expenditure. Qualifying small companies are eligible for double deduction of expenses up to a maximum of R 20,000 in the year that operations commence. Depreciation allowances of non-mining companies vary according to type of asset, life expectancy, and intensity of use of assets. Generally, the straight-line	With these provisions, the maximum <u>effective</u> rate of the tax is: Individuals 10 percent (i.e., 40 percent maximum income tax rate, applied to 25 percent of net capital gains) Companies 15 percent Trusts 20 percent a. <u>Non-gold mining companies</u> : 30 percent of taxable income. Non-resident companies, carrying out trade through a branch or agency within South Africa, are taxed at a rate of 35 percent. These companies are not subject to the Secondary Tax on Companies (see 1.4), in respect of dividends. b. <u>Employment companies</u> : 35 percent c. <u>Qualifying small businesses</u> : 15 percent of taxable

³ The capital gains tax became effective on October 1, 2001.

South Africa: Tax Summary as of June 2004¹

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
	<p>of R 20,000 are required to make two provisional tax payments in respect of each year of assessment. The first payment is made within six months after the commencement of the year of assessment, the second at the end of such year, and an optional third payment within a period of seven months from the close of such year for companies with a February year end. In all other cases the third payment will be due within six months after the close of the tax year.</p>	<p>method is used. Plant and machinery used in a process of manufacture, including aircraft and ships used by a taxpayer in the carrying on of his trade, may be written off on a straight line basis over five years. Farming machinery may be written off at 50 percent 30 percent, and 20 percent over three years. An accelerated allowance for new machinery and manufacturing assets acquired after March 1, 2002 is provided for, according to a 40-20-20-20 schedule.</p>	<p>income up to R 150,000 and 30% of taxable income in excess of R 150,000.</p>
	<p>As of February 2004, comprehensive agreements for avoidance of double taxation on the same income were in force with 55 countries, with agreements under negotiation or in the process of signing or ratification with 34 other countries.</p> <p>Limited agreements for the avoidance of double taxation on profits derived from sea or air transport are also in force with four countries.</p> <p>Gold mining companies are subject to special tax provisions.</p>	<p>Qualifying small companies are eligible for immediate write-off of all plant and machinery in the year in which it is brought into use.</p> <p>Depreciation allowances are allowed for certain permanent structures: industrial buildings and hotels – 5 percent a year; airport service facilities - 5 percent a year; electricity transmission lines, telephone transmission lines and railway lines – 5 percent a year; pipelines for transporting oil and gas – 10 percent a year.</p> <p>Taxpayers investing in designated depressed urban areas receive special accelerated depreciation allowances for construction (20 percent in the first year, 5 percent per year for the subsequent 16 years) or refurbishment of buildings (20 percent straight line over five years).</p> <p>Capital expenditure is allowable as a deduction from income of all types of mines in the year of</p>	<p>d. <u>Gold mining companies</u>: Formula-based tax rate determined in accordance with one of the following:</p> <p>(a) Where the company is not exempt from the secondary tax on companies (STC):</p> $y = 37 - (185 \div x)$ <p>(b) where the company is exempt from the STC:</p> $y = 46 - (230 \div x)$ <p>In the formula y is the tax rate and x is the profit-to-revenue ratio.</p>
	<p>As of February 2004, comprehensive agreements for avoidance of double taxation on the same income were in force with 55 countries, with agreements under negotiation or in the process of signing or ratification with 34 other countries.</p> <p>Limited agreements for the avoidance of double taxation on profits derived from sea or air transport are also in force with four countries.</p> <p>Gold mining companies are subject to special tax provisions.</p>	<p>Qualifying small companies are eligible for immediate write-off of all plant and machinery in the year in which it is brought into use.</p> <p>Depreciation allowances are allowed for certain permanent structures: industrial buildings and hotels – 5 percent a year; airport service facilities - 5 percent a year; electricity transmission lines, telephone transmission lines and railway lines – 5 percent a year; pipelines for transporting oil and gas – 10 percent a year.</p> <p>Taxpayers investing in designated depressed urban areas receive special accelerated depreciation allowances for construction (20 percent in the first year, 5 percent per year for the subsequent 16 years) or refurbishment of buildings (20 percent straight line over five years).</p> <p>Capital expenditure is allowable as a deduction from income of all types of mines in the year of</p>	<p>e. <u>Oil extraction companies</u>: 58 percent</p> <p>f. <u>Long-term insurance companies</u>: 30 percent tax is levied on income derived from company policies as well as on income derived from policies held by individuals.</p> <p>g. <u>Income derived from pension and retirement funds</u>: The net rental and gross interest of pension, provident, and retirement annuity funds are taxed at a rate of 18 percent (“Retirement Fund Tax”). Foreign dividend payments received by the funds from property unit trust schemes are also subject to the 18% tax.</p>

South Africa: Tax Summary as of June 2004¹
 (All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
<p>1.4. <u>Secondary tax on companies (STC)</u></p> <p>Income Tax Act No. 58 of 1962, as amended</p>	<p>A central government tax payable on the net amount of dividends, i.e., the excess of dividends declared by the company over dividends accrued to the company during a dividend cycle.</p>	<p>assessment during which it is incurred (immediate expensing), limited, however, to the annual mining working profit. Any unutilized capital expenditure may be carried forward to the next year as unredeemed capital expenditure. Cost of land, mineral rights, mining rights, servitude, etc., are not deductible.</p> <p>An assessed loss can be carried forward indefinitely but cannot be carried back.</p> <p><u>Exemptions</u> include:</p> <p>1. Dividend payments of fixed property companies as defined in section 1 of the Unit Trust Control Act portfolios. These dividends are taxed in the hands of the recipient.</p> <p>2. Dividends in specie in relation to approved unbundling transactions.</p> <p>3. Dividends paid out by subsidiary companies to their holding company.</p>	<p>12½ percent</p>
<p>2. Social security contributions</p> <p><u>2.1. Unemployment insurance contributions</u></p> <p>Unemployment Insurance Contribution Act No. 4 of 2002.</p>	<p>A contribution collected for the Unemployment Insurance Fund, administered by the South African Revenue Service.</p>	<p>The maximum earnings amount subject to the tax is R 106,032 per year. Excluded from unemployment insurance are temporary workers who are employed for less than 24 hours per month.</p>	<p>Employee and employer contributions of 1.0 percent each of the insured earnings, payable monthly by employers.</p>

South Africa: Tax Summary as of June 2004¹

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
2.2. <u>Work injury insurance contributions</u>	A compulsory insurance scheme.	The maximum earnings amount subject to the tax is R 123,396 per year.	Insurance premiums vary with risk, according to 23 different classes of employers (i.e., sectors). ⁴
2.3 <u>Skills Development Levy</u>	A compulsory charge on total remuneration paid by employers, earmarked to fund skills development. The levy is payable for PAYE-registered employers with an annual payroll in excess of R 250,000.	Exclusions include: amounts paid to independent contractors; reimbursive amounts; amounts paid for services rendered by directors of private companies. Partial rebates are available for training provided by employers from Sector Training and Education Authorities, which administer the skills development funds.	1 percent of payroll.
3. Taxes on payroll and workforce			
3.1. <u>Payroll tax</u>	A tax levied by local authorities (district and joint services councils).	The levy is a deductible expense for income tax purposes.	Ranges from 0.2 percent to 0.38 percent of the payroll, depending on the local council.
Regional Service Councils Act No.109 of 1985			
KwaZulu and Natal Joint Services Act No. 84 of 1990			
4. Taxes on property⁵			
4.1. <u>Property tax</u>	A municipal tax payable on the capital value of land and improvements to finance the cost of municipal services. The tax may be levied on residential, industrial, commercial, farm, state,	The rate is levied on the basis of market valuation in rand. Property valuation may be valid for a maximum of five financial years. The valuation of public infrastructure is discounted by 30 percent.	Rates are set by municipal councils and differ across local governments. Annual increases in property rates may be capped by
Municipal Property Rates Act No. 6 of 2004.			

⁴ The average rate for 2002/03 was R 1.40 per R 100 of earnings.

⁵ A tax of 0.25 percent of the purchase value of marketable securities (Act No. 32 of 1948) was repealed on December 22, 2003.

South Africa: Tax Summary as of June 2004¹

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
<p>4.2. <u>Estate duty</u> Estate Duty Act No. 45 of 1955, as amended</p>	<p>and public service property and land owned by public benefit organizations.</p>	<p>Municipalities may exempt or provide reduced valuation to other specific categories of owners by use, location, or ownership, but not to specific property owners.</p> <p>Specific exemptions include:</p> <ul style="list-style-type: none"> a. Mining rights. b. Property belonging to a land reform beneficiary (for 10 years after registry of deed). c. The first R 15,000 of the market value of a residential property. d. Property registered and used as a place of public worship. e. National parks. <p>Newly established property taxes must be phased in over three years.</p>	<p>the national Minister of Provincial and Local Government, in consultation with the national Minister of Finance.</p>
<p>4.3. <u>Donations tax</u> Income Tax Act No. 58 of 1962, as amended</p>	<p>A central government tax payable on the estate of an individual. Property includes life insurance proceeds and lump-sum benefits received from pension or provident fund benefits.</p> <p>The estate of a deceased non-resident consists of only his or her South African assets. Agreements to avoid double estate taxes are in place with Lesotho, Sweden, the U.K., the U.S., and Zimbabwe.</p> <p>A central government tax payable by the donor on the cumulative value of property donated by residents.</p>	<p>Deductions include funeral and estate administration expenses; debts of deceased as at the date of death; donations to qualified non-profit organizations; and property accruing to the surviving spouse. A single deduction of R 1,500,000 is applicable.</p> <p>Donations to spouses and to qualifying non-profit organizations are exempt. Annual exemption limits of R 10,000 and R 30,000 apply for legal and natural persons, respectively.</p>	<p>20 percent</p> <p>20 percent</p>

South Africa: Tax Summary as of June 2004¹

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
4.4. <u>Transfer duty</u> Transfer Duty Act No. 40 of 1949, as amended	A tax payable on the purchase consideration or fair value (whichever is the greater) of transfers of real estate.	Exemption on the first R 150,000.	For natural persons, 5 percent on the value in excess of R 150,000 but under R 320,000, plus 8 percent on the amount in excess of R 320,000.
5. Domestic taxes on goods and services			
5.1. <u>Value-added tax (VAT)</u> Value-Added Tax Act No. 89 of 1991, as amended	A central government tax levied on the supply of goods and services. VAT is collected at a single, positive rate, is consumption-type and allows full and immediate tax credit on capital and intermediate goods. VAT is based on a destination principle with exports zero-rated and imports taxed). An invoice-based credit method is used, with VAT calculated on sales and tax paid on the difference between VAT on sales and VAT on purchases, adequately supported by invoices. The registration threshold for the VAT is R 300,000 per year of turnover. Voluntary registration is available for vendors with turnover of more than R 20,000, but less than R 300,000 per year.	Main <u>zero-ratings</u> include (i) exports; (ii) several food items including brown bread, cooking oil, maize meal, milk, eggs, fruit, and vegetables; (iii) illuminating paraffin; (iv) petrol and diesel; (v) several agricultural inputs including seeds, feed, and fertilizers sold to VAT registered farmers; and (vi) international transport services. Main <u>exemptions</u> include: (i) financial services (mainly interest); (ii) residential rents; (iii) passenger transport; (iv) educational services; (v) medical schemes and pension and life insurance benefits; (vi) medical services and medicines supplied by the state; and (vii) child care services.	For legal entities, 10 percent of total value of property. 0 percent, 14 percent.
5.2. <u>Turnover tax</u> Regional Service Councils Act No. 109 of 1985 KwaZulu and Natal Joint Services Act No. 84 of 1990	A tax on turnover levied by local authorities (District and Joint Service Councils).	Exemptions: (i) religious, charitable and educational institutions; (ii) non-profit organizations engaged in nature conservation or animal protection; (iii) amateur sport clubs; and (iv) letting of accommodation to employees.	Range from 0.1 percent to 0.2 percent.

South Africa: Tax Summary as of June 2004¹

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
5.3. <u>Gambling taxes</u>	A provincial government tax levied on gambling, casinos and betting.		<p>The schedule of fees and levies differ across provinces.</p> <ul style="list-style-type: none"> - Casino license fees range from a flat rate of R 50,000 to R 114,000 for the basic license renewal. Additional amounts of about R 1,000 are charged per table, machine or employee. - Levies on casino gambling revenue range from 5-12 percent and are levied on gross revenue. - Gambling machine operators tend to have lower flat-rate licenses but higher charges per machine and higher levies on income, ranging from 10-20 percent. - Bingo halls are charged per seat, and in some cases per employee. The revenue levies range from 2.5-15 percent of income, net of amounts paid out to punters.
5.4. <u>Excise duties</u>	Central government taxes payable by the manufacturer or importer of certain commodities. Most are specific, though some ad valorem rates exist.	A rebate is granted on excisable goods that are exported or used by diplomatic representatives and on taxable goods used by producers in farming, forestry and the manufacture of taxable goods for industrial or commercial purposes.	<p>Alcoholic beverages: Beer (excluding sorghum beer): 3,073.04 cents per liter absolute alcohol. Sorghum beer: 7.82 cents per liter. Sorghum powder: 34.7 cents per kilogram. Unfortified wine: 117.10 cents per liter. Fortified wine: 232.87 cents per liter. Sparkling wine: 323.32 cents per liter. Spirits: 4,583.65 cents per liter absolute alcohol. Other fermented drinks: 153.74 to 295.27 cents per liter depending on the type.</p> <p><u>Tobacco products:</u> Cigarettes: 226.40 cents per 10 cigarettes. Cigarette tobacco: 13,903 cents per 50 grams. Pipe tobacco: 6,832 cents per kilogram. Cigars: 123,304 cents per kilogram.</p> <p><u>Fuels:</u> Petrol: 3,909 cents per liter.</p>

South Africa: Tax Summary as of June 2004¹

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
			Diesel: 3.817 cents per liter.
			<u>5 percent ad valorem excise duty:</u>
			-- Vending and office machines (excluding computers, photocopiers and printers, but including fax machines and modems) and TV sets;
			-- Motorcycles (200-800 cc engines).
			<u>7 percent ad valorem excise duty:</u>
			-- Firearms;
			-- Perfumes and toiletries;
			-- Video equipment, hi-fi equipment, optical lenses, photographic and cinematographic equipment (excluding film).
			Petrol: R 1.11 per liter ⁶
			Diesel: R 0.95 per liter
			Distillate fuels and mixture of kerosene: R 1.11 per liter
<u>5.5. Fuel levy</u>	A central government levy on the sale of petrol, diesel, and kerosene mixtures.	A concession is made for diesel fuel sales to primary producers (agriculture, forestry and mining) of 38.8 percent (36.86 cents per liter) of the general fuel levy.	
Customs and Excise Act	No. 91 of 1964, as amended	Primary producers (agriculture, forestry and mining) also qualify for a full rebate of the Road Accident Fund levy.	
		<u>Road Accident Fund levy:</u>	An additional fuel levy of 5 cents per liter is collected on petrol and diesel for the Road Accident Fund.

⁶ Fuel excise rates are from April 7, 2004.

South Africa: Tax Summary as of June 2004¹

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
<p>5.6. <u>Motor vehicle taxes</u> Customs and Excise Act No. 91 of 1964, as amended</p>	<p>A tax levied on the value of imported components used in the manufacture of duty payable motor cars, station wagons and similar dual purpose motor vehicles, excluding heavy duty motor vehicles and motorcycles.</p> <p>A customs driven program in terms of which the customs value of components imported for the manufacture of motor vehicles are liable to customs duty.</p>	<p>Provision is made that the value of the imported components can be reduced by a duty free allowance as well as the value of imported rebate credit certificates. Customs duty is only payable on the remaining customs value.</p>	<p>36 percent as of January 1, 2004, with an annual reduction of 2 percent until it reaches 20 percent</p>
<p>5.7 <u>Air passenger tax</u> Customs and Excise Act No. 91 of 1964, as amended</p>	<p>Ad valorem customs and excise duty which is applicable to imported as well as locally produced motor vehicles.</p> <p>Items (1) and (2) are applicable to motor cars, motor vehicles for the transport of ten or more persons of a vehicle mass not exceeding 1,600 kg., motor vehicles for the transport of goods of a vehicle mass not exceed 2,000 kg., or a GVM not exceeding 3,500 kg. or a mass not exceeding 1,600 kg. or a GVM not exceeding 3,500 kg. per chassis fitted with a cab and chassis fitted with engine of Heading No. 87.06 of a mass not exceeding 3,500 kg.</p> <p><u>Heavy duty vehicles:</u> certain components are liable to customs duty and the balance allowed under full rebate of customs duty.</p> <p>Central government levy on international air travel</p>	<p>Exemptions include: children under 2 years of age; passengers carried 'not for reward'.</p>	<p>0.00003 times the value for ad valorem duty purposes, less 0.75 percent, with a maximum of 20 percent</p> <p>Compression ignition engine: 20 percent Driving axles: 20 percent Gear boxes: 20 percent Cabs/bodies: 5 percent Pneumatic tires: 20 percent</p> <p>R 110 on international travel to all destinations, except Botswana, Lesotho, Namibia and Swaziland where the charge is R 55.</p>

South Africa: Tax Summary as of June 2004¹

(All amounts in South African rand)

Tax	Nature of Tax	Exemptions and Deductions	Rates
<p>6. Taxes on international trade transactions</p>			
<p>6.1. <u>Customs duties</u></p>			
<p>Customs and Excise Act No. 91 of 1964, as amended</p>	<p>A one-column tariff schedule based on the Brussels nomenclature with general, most favored nation, and preferential rates of duty.</p> <p>There is a customs union (SACU) with Botswana, Lesotho, Namibia and Swaziland.</p> <p>There is a trade agreement with the European Union, which provides for progressive reduction and elimination of duties over 5-12 years from 1999, depending on the type of good.</p> <p>There is a trade agreement with other members of the South African Development Community (2000), which provides for a phased reduction and eventual elimination of duties over eight years.</p>	<p>Rebates are allowed for certain goods used in manufacture by approved industries (e.g., textiles, motor vehicle production) or by particular institutions and bodies.</p> <p>Duty free import is allowed once per person during 30 days for new and used goods up to R 3,000 per person with separate provisions for alcoholic beverages, tobacco and perfumes.</p>	<p>Import duties vary widely. There are nearly 50 tariff bands, and specific duties apply to certain meat products, fish, tea and textile products). Tariff rates generally fall within eight levels ranging from 0 to 30 percent, with a few exceptions, including clothing and textiles and motor vehicles. The import-weighted average tariff rate has been reduced from more than 20 percent to under 7 percent.</p>
<p>7. Other taxes</p>			
<p>7.1. <u>Stamp duties</u></p>			
<p>Stamp Duties Act No. 77 of 1968, as amended</p>	<p>Ad valorem or specific taxes payable on check or credit card transactions, electronic payments, or legal documents such as bills of exchange, bonds, leases, marketable securities, etc.⁷</p>	<p>Most securities issued by certain public corporations and public authorities are exempt from stamp duty on issue and transfers. Where marketable securities tax is chargeable, brokers' notes do not attract stamp duty.</p>	<p>Rates of stamp duty vary for different instruments and also for a particular instrument. Examples are: 20 cents per debit entry or electronic payment transaction; 5 cents per R 100 for bills of exchange; and 0.25 cents per R 100 on registration of the transfer of share certificates.</p>

⁷ In the 2004/05 budget, the stamp duty on mortgages for home purchase was proposed for repeal, with effect from March 1, 2004.