HIV/AIDS Beyond Africa:

Managing the Financial Impacts

May 2005

Study undertaken jointly by F&C Asset Management and UBS

Contents

Please see page 78 for contact information

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- World Economic Forum (WEF) – www.weforum.org/globalhealth

Executive Summary

F&C Asset Management - Responsible Investment

F&C Asset Management plc (F&C) is a leading European investment manager with £125.3 billion under management (as at 31 March 2005). It manages its equity portfolios according to its Responsible Engagement Overlay (***reo***®) investment approach. With ***reo***®, F&C engages in dialogue with the companies in which it invests in order to assess how they manage the risks related to governance, social, environmental and ethical factors, and to encourage the adoption of best practice where this can enhance shareholder value.

In a unique collaboration[1] between one of the UK's largest fund managers and a sell-side investment house, UBS's Customized Research Team worked with F&C to produce this report: *HIV/AIDS Beyond Africa: Managing the Financial Impacts.* F&C and UBS focus on the ways in which HIV/AIDS could affect financial performance, and what companies can do to manage the effects of the disease.

The study does not underestimate the extent of the human tragedy relating to HIV/AIDS. Instead, it seeks to focus on the specific effects of the disease on financial markets. While the authors recognise that many companies are tackling HIV/AIDS out of their wish to do the right thing for their employees, this report concentrates on the financial consequences associated with this action.

Key Findings

Overview

- In 2004[2], estimates indicated that between 36 and 44 million people worldwide were living with HIV. With 65% of this total currently living in Sub-Saharan Africa, HIV/AIDS still tends to be regarded as an "African problem".

- The most recent 2004 UNAIDS report on HIV/AIDS flags serious epidemics in Brazil, Russia, India and China, and overall rising prevalence rates in these countries.

- Secrecy and social stigma surround the disease, and denial is still a common response. This has serious implications when trying to identify and accurately assess infection rates.

The Economic Impact of HIV/AIDS

- HIV/AIDS primarily strikes working-age (15-49 year olds) members of society at the peak of their economic productivity. The disease can be unidentified yet contagious and thus can spread unchecked.

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[1] Contributing authors. F&C: Karina Litvack, Kirsty Jenkinson, Anna Krutikov. UBS: Julie Hudson, Shirley Knott. Independent strategic development consultant: Patrick Noack

[2] UNAIDS 2004 Update

- Increased mortality and ill-health in the employee population can damage workforce productivity and increase employment costs as a result of increases in: medical care, benefits payments, insurance premiums, absenteeism, recruitment and training costs, and disruption to production.

- Sub-Saharan Africa currently accounts for 11% of the world's population and 1% of global GDP. Brazil, Russia, India and China account for more than 42% of the global population and 8% of global GDP. These countries are key markets for manufacturing and outsourcing, and are strategically important to a large number of multinational companies. We expect them to be significant contributors to future global economic growth.

- Unless prevalence trends are reversed, we believe the disease will increasingly cross into the general population in Brazil, Russia, India and China - areas of growing economic and commercial importance.

HIV/AIDS and the Financial Markets: Drawing on the South African Experience

- Companies operating in AIDS-affected areas can choose to take no action or they can introduce a range of intervention programmes, focusing on preventing the spread of the disease and/or treating those suffering from it. Costs and benefits are associated with all of these options.

- A net present value (NPV) approach to valuing the impact of HIV/AIDS is proposed as the most appropriate for firms attempting to capture the real cost of successful intervention. In our opinion, traditional accounting frameworks fail to capture the positive effect of successful intervention programmes, recording them only as a cost.

- In our view, there is sufficient evidence to suggest that the presence of HIV/AIDS in the workplace adversely affects company profit margins. When wage costs are a significant portion of a company's overall cost structure, the impact of HIV/AIDS on profitability can be substantial.

- HIV/AIDS causes a decrease in overall per capita expenditure but does not behave like a normal demand shock: spending on staple goods (food items, personal care and clothing, household items) tends to be hit harder than discretionary spending. This has implications for which companies and sectors are most vulnerable to the demand-side effects of the epidemic.

- There are currently no clear differences between analysts' fundamental forecasts for South African companies, and developed and emerging market peers. This suggests that *it is possible* for companies to maintain "business as usual" in the face of HIV/AIDS. Those companies best placed to take active measures to monitor and control infection rates will probably be the most successful.

- South African firms appear to trade more cheaply than their developed and emerging market peers, indicating some degree of South African risk

premium in valuations. This valuation gap suggests that South African companies factor in higher country risk, which may to some extent reflect (among other things) life expectancy and health indices, including HIV/AIDS prevalence.

The Business Response to HIV/AIDS

- Companies may elect to divest from, or avoid investment in, HIV-affected regions, but there are various factors that may limit their ability to do so. In such cases, companies that retain or increase investment face a choice between relying on the public health system and taking matters into their own hands. We believe this choice may be more or less influenced by humanitarian concerns, but is very much conditioned by economic factors.

- In many cases, companies choose to compensate for government policy shortcomings, which range from moderate to acute in respect of HIV/AIDS, because the "do-nothing" approach may prove costlier. Such corporate efforts are much more likely to succeed where government action, including national education, prevention and treatment initiatives, is strongest (e.g. Brazil, Thailand; see Section 4). Conversely, they are less likely to be as effective, and certainly more onerous for companies, if the host government is doing little at the national level to combat the spread of the disease. As such, we believe it is in a company's best interest to lobby for the implementation of appropriate government policies, to enable corporate action to succeed.

- As far as we have been able to ascertain, the country risk assessments conducted by companies rarely factor in specific HIV profiles and the impact on life expectancy. As a result, we believe the full economic impact of the disease can be overlooked. In our opinion, these risk assessments should include an evaluation of the national prevalence of HIV, and the extent to which the host government is managing and containing the epidemic.

- While the business community is increasingly taking responsibility for tackling HIV/AIDS, its actions remain largely limited to operations in South Africa. This is most likely because this is where prevalence is currently known to be particularly high [3], and firms are already encountering the day-to-day effects of HIV/AIDS (see Section 5). Much less currently appears to be being done in other affected, and commercially important, countries, such as China, India and Russia, where policies at this stage seem to be less developed.

- Where companies are tackling HIV/AIDS, they are employing a wide variety of initiatives to measure and manage the effects of the disease, including: surveillance studies; "knowledge, attitude, perception and behaviour" studies; prevalence surveys; voluntary counselling and testing

[3] See, for example, the UNAIDS 2004 Update for prevalence levels by country and region.

(VCT); prevention, education and awareness initiatives; wellness programmes and the provision of anti-retroviral therapy (ART).

Key Recommendations

The report concludes that as the disease spreads, the economics of prevention and treatment, as exemplified in South Africa, increasingly argue in favour of business self-help over reliance on public health authorities. Moreover, there seems to be scope for the high cost of the South African experience, both in human and financial terms, to be largely avoided in the rapidly industrialising countries where HIV/AIDS looks set to take hold, provided prompt action is taken. In particular, we believe companies should:

Conduct Risk Assessment:

- **Include an evaluation of both the national prevalence of HIV/AIDS and the response of the host government in country risk assessments for new and existing investments.**
- **Determine actual and potential staff exposure to HIV/AIDS through, for example, situation analysis, prevalence surveys, and voluntary counselling and testing (VCT).**

Evaluate Options:

- **Collect data to evaluate the costs and benefits associated with intervention programmes, and inform decisions on appropriate strategies**.

Act:

- **Implement, where relevant, prevention, education, awareness, wellness and treatment programmes, to manage the disease and mitigate its impacts.**

Communicate:

- **Publish company-wide non-discriminatory policies relating to employees' HIV status and ensure senior management accountability for such policies. This should reduce the secrecy and stigma surrounding the disease, and enhance the effectiveness of the company's programmes.**
- **Report publicly to shareholders and stakeholders on how HIV/AIDS is being managed throughout the company.**

Monitor:

- **Re-evaluate the effects of the disease through periodic monitoring and adjust strategy as necessary.**

Lobby:

- **Press the host government to implement appropriate education and treatment policies, so as to boost the effectiveness of corporate efforts.**

- **Press international donors and multilateral organisations to support local HIV/AIDS prevention and treatment policies.**

How Will This Study be Used?

We believe this study enhances understanding of the ways in which HIV/AIDS could impact commercial success and financial valuations. To this end, it will:

- Be integrated into F&C's overall investment analysis, to enhance the effectiveness of its analytical process;
- Form part of F&C's ongoing ***reo***® programmes, enabling analysis of the risks likely to affect the financial performance of its investee companies over the long term.
- Be available to institutional clients of UBS for use where relevant in the context of analysis, strategy, risk control and portfolio planning.

Introduction – HIV/AIDS and the Financial Markets

The spread of the HIV/AIDS[4] epidemic has been an ever-present feature of world news since the first case of the disease was reported in the US in the early 1980s. Over the past twenty years, extensive research has been undertaken to understand the dynamics of the disease, its impact on society and, increasingly, its potential implications for economic growth. However, while a great deal has been written on a macro level (for example, its potential impact on GDP), less attention has been focused on the ways in which HIV/AIDS can affect global financial markets or specific company performance.

To date, sub-Saharan Africa[5] has been the hardest hit by HIV/AIDS, with the disease affecting over a quarter of the total population. Infection rates hit 39% in Swaziland, 37% in Botswana, 26% in Zimbabwe, and 22% in South Africa in 2003[6]. Although steady prevalence numbers in the region in 2004 suggest that the virus may be stabilising, new infections are still matched by the number of deaths, which means the epidemic remains highly active[7]. But, while these regions are suffering a severe humanitarian crisis, they play a relatively small role in the world's financial markets, and thus the impact of the disease on global markets is likely to be insignificant. Increasingly, however, HIV/AIDS shows signs of developing into more than an "African problem". Infection rates are reported to be increasing in Brazil, Russia, India and China[8] – all key financial growth areas and strategically important regions for many multinational companies.

In our view, the experience of firms operating in Sub-Saharan Africa is likely to be very valuable to companies encountering HIV/AIDS in other contexts. On this basis, the report draws on the experience of African firms. Since South Africa has the most developed financial markets in the region, inevitably many of our examples are taken from the South African context.

Aims of the Study

This report forms part of F&C Asset Management's (F&C)[9] Responsible Engagement Overlay (***reo***®) investment approach. As a responsible shareholder, F&C engages in dialogue with the companies in which it invests in order to assess how they manage risks related to governance, social, environmental and ethical factors, and to encourage the adoption of best practice where this can enhance shareholder value.

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[4] HIV = human immunodeficiency virus. AIDS = acquired immunodeficiency syndrome.

[5] Sub-Saharan Africa denotes the aggregate of Southern Africa, Eastern Africa and West Africa. South Africa lies within Southern Africa.

[6] UNAIDS Table of Country Estimates, July 2004

[7] UNAIDS Epidemic Update 2004, p. 2

[8] Brazil, Russia, India and China are often collectively referred to as the "BRIC" economies, denoting a significant economic powerhouse of the future.

[9] F&C Asset Management was created on 11th October 2004 from the merger of ISIS Asset Management and F&C Management. F&C is a pan-European fund manager with £125.3 billion under management (as at 31 March 2005).

In light of this approach, this study aims to address the following questions:

- Is HIV/AIDS an issue for the financial markets and if so, why?
- Can lessons be learnt from the current situation in South Africa and the effects of the disease on the companies operating there?
- How are companies trying to manage the disease, and what practices have emerged that have proven successful at balancing short- and long-term costs?

In a unique collaboration between one of the UK's largest fund managers and a sell-side investment house, UBS's Customized Research Team[10] worked with F&C to produce this report.

Patrick Noack, a consultant on HIV/AIDS issues, who has worked with UNAIDS, was involved in initiating the study and advised on the epidemiological sections of this report[11].

Scope

The report reviews the prevalence of HIV/AIDS in order to determine how levels of infection could affect financial performance. In addition to analysing the current situation in South Africa[12], it considers the potential effects of the disease in other parts of the world, namely Brazil, Russia, India and China. These regions have been selected as they are forecast to be significant contributors to future world GDP growth, as well as areas of increasing infection. The latter part of the study focuses on what may be done to minimize the negative effects of the disease and, specifically, what elements of good practice currently exist within companies to manage HIV/AIDS.

The study does not attempt to value the impact of HIV/AIDS on specific firms, either in isolation or net of any benefits flowing from offsetting policy action. For additional research in this area, please refer to the work of a leading academic from Boston University, Sydney Rosen (see Section 2), and also to the specific modelling being done by companies, such as **Anglo American**, relating to their own businesses. We believe that companies themselves will probably be in the best position to carry out this kind of analysis as they build and track the necessary experience and detailed levels of data required.

The study does not underestimate the extent of the human tragedy relating to HIV/AIDS. It instead seeks to focus on the specific effects of the disease on the financial markets. While the authors recognise that many companies are tackling HIV/AIDS out of their wish to do the right thing for their employees, this report concentrates on the financial consequences associated with this action.

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[10] UBS's Customized Research effort supported top clients of the firm with elements of their investment process according to need. Julie Hudson and Shirley Knott were the specific project team members.

[11] His strategic development consultancy can be found at www.patricknoack.net

[12] See above, for the rationale behind the choice of South Africa.

What is HIV/AIDS?

The Human Immunodeficiency Virus (HIV), which causes Acquired Immunodeficiency Syndrome (AIDS), was first identified in 1983. HIV affects the human immune system by infecting the CD4+ cells, designed to combat infections. Once infected with HIV, patients become more susceptible to a range of opportunistic infections, of which tuberculosis is the most prominent. AIDS is diagnosed when a person diagnosed with HIV either becomes ill as a result of these infections, or when the number of CD4+ cells falls below a certain level. (The exact CD4+ count at which AIDS is diagnosed is a subject of much debate, but ranges between 200 and 350. A healthy person has an approximate CD4+ count between 650 and 800.) On average, a person infected with HIV becomes ill with AIDS within 8-11 years.

The virus is transmitted through blood or other body fluids. Principal modes of transmission include unprotected sexual intercourse, sharing hypodermic needles or other equipment, and receiving transfusions of infected blood products. In addition, most children who are infected contract the virus directly from their infected mothers during pregnancy, birth, or breast-feeding. While the disease is currently incurable, existing anti-retroviral therapy (ART) acts to inhibit opportunistic infections, and the onset of AIDS.[13]

[13] The Business Response to HIV/AIDS: Impact and Lessons Learned, UNAIDS et al, Geneva and London, 2000

Data Issues

Social Stigma

When analysing HIV/AIDS, we identify two significant data challenges. First, it remains a disease that is marked by significant social stigma and is still widely misunderstood. In many areas of the world, to be HIV-positive or suffering from full-blown AIDS marginalises an individual from society, and brings shame and disrepute on his/her family. Therefore, denial is a common response. This, in turn, clearly has implications when trying to identify and accurately assess infection rates.

Forecasting Challenges

Forecasting infection rates can also be full of difficulties. Forecasts rely on good *prevalence data*[14], as well as information about the geographical and age-specific distribution of the infection. From a business perspective, estimating HIV prevalence in a workforce should allow for extrapolations about its potential impacts and costs, and a means of determining the most appropriate steps to combat the disease.

Accurate data are extremely difficult to obtain because not **everyone** is tested for HIV. The most common basis for establishing national prevalence data in developing countries is through testing women attending ante-natal clinics. Some of these clinics are *HIV sentinel sites*[15] where prevalence rates are monitored over time. However, sentinel sites are accurate only in estimating prevalence among pregnant women: data obtained through these sites lead to less precise results when used to determine prevalence rates among non-pregnant women and men. Major assumptions are made when scaling up data from pregnant women to extrapolate specific trends in un-sampled general populations. National prevalence estimates in countries with high-quality sentinel survey data have very poor confidence intervals, (i.e. approximately +/-20%[16].) For example, in Botswana, where adult prevalence is estimated to be 39%, actual infection rates are likely to range between 31% and 47%.

Some countries carry out Demographic and Health Surveys (DHS) that target a cross-section of the general population, allowing for better estimates and revisions to previously calculated sentinel site data. However, given the expense of DHS surveys, they are infrequent as few developing countries can afford them.

[14] That is the proportion of the population infected with HIV at a given point in time.

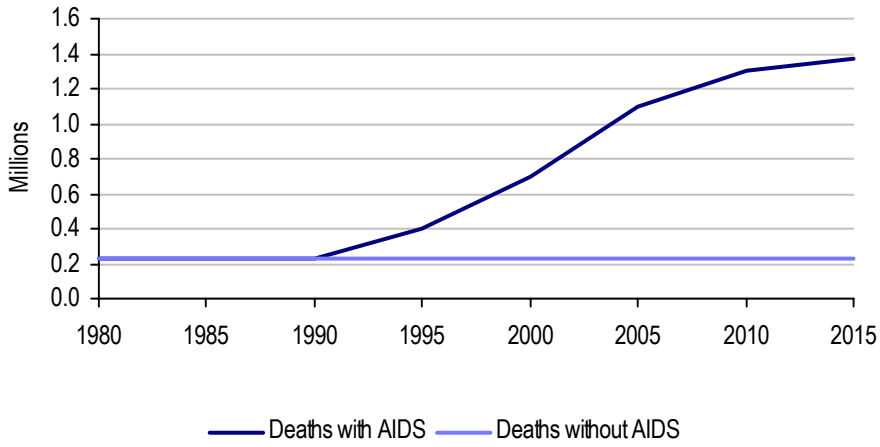
[15] HIV sentinel sites are among the most commonly used sources of data; periodic surveys are undertaken among specific population groups. Quoted from UNAIDS 2004 Report on the Global HIV/AIDS Epidemic: 4th Global Report.

[16] Estimates by Neff Walker.

Section 1- What Is the Problem?

1.1 Prevalence – Current Situation

Chart 1: Annual Adult Deaths in Southern Africa



Source: USAID (2003). HIV/AIDS in Southern Africa: Background, Projections, Impacts and Interventions

HIV/AIDS is largely regarded as an African problem

In 2004, estimates indicated that between 36 and 44 million[17] people worldwide were living with HIV. During that year alone, it is estimated that 5 million new infections occurred and 3 million people died from the disease. Inasmuch as close to 65% of the infected total are believed to be living in Sub-Saharan Africa, HIV/AIDS tends, unsurprisingly we believe, to be regarded as an African problem. *National adult prevalence rates*[18] range from 22% in South Africa to 37% in Botswana and 39% in Swaziland. These dramatic numbers tend to grab headlines, overshadowing trends in prevalence that indicate a growing threat to other parts of the world, in particular, countries such as Russia, India and China. Brazil is also potentially at risk, in our view, in spite of effective government intervention programmes, as transmission rates are reported to be rising.

Pockets of high infection exist across the world

The most recent 2004 UNAIDS Report on the Global AIDS Epidemic[19] flags serious epidemics in some provinces, territories and states of Brazil, the Russian Federation, India and China. Not only does HIV now affect all 31 provinces of China, but preventative measures that have been effective in suppressing the epidemic in nearby Thailand are not in place. "Once HIV becomes well-established in commercial sex circuits, onward spread of the virus could be quite rapid if current behaviour trends persist[20]". In India, several states have been affected by serious epidemics. In Eastern Europe and Central Asia, the Ukraine and the Russian Federation are the worst hit, with 60% of all HIV infections occurring in 10 of a total of 89 regions. Within

[17] UNAIDS, 2004

[18] Defined as 15-49 year olds carrying the virus, and based on data from ante-natal clinic surveys.

[19] UNAIDS (2004), 2004 Report on the Global HIV/AIDS Epidemic: 4th Global Report.

[20] UNAIDS Epidemic Update, p. 37

Latin America, Brazil has a relatively low overall prevalence rate, yet pockets of risk remain, especially among injecting drug users in the capital, and heterosexual transmission appears to be on the rise[21].

In Brazil, Russia, India and China, overall low prevalence rates mask the rising risk of significant epidemics in regional "hot spots"

Table 1: HIV/AIDS Prevalence, Selected Countries and Regions, 2001-2004

Region/Country	Adult (15-49) rate (%) end 2001		Adult (15-49) rate (%) end 2003		Adult (15-49) rate (%) end 2004	
	Estimate	*Estimated number of People*	*Estimate*	*Estimated number of People*	*Estimate*	*Estimated number of People*
Sub-Saharan Africa	**7.6**	**22,000,000**	**7.5**	**25,000,000**	**7.4**	**25,400,000**
South Africa	20.9	4,800,000	21.5	5,300,000	na	na
East Asia	**0.1**	**670,000**	**0.1**	**900,000**	**0.1**	**1,100,000**
China	0.1	650,000	0.1	840,000	na	na
Japan	<0.1	12,000	<0.1	12,000	na	na
Republic of Korea	<0.1	5,600	<0.1	8,300	na	na
South & South-East Asia	**0.6**	**5,800,000**	**0.6**	**6,500,000**	**0.6**	**7,100,000**
India	0.8	3,800,000	0.9	5,100,000	na	na
Thailand	1.7	620,000	1.5	570,000	na	na
Eastern Europe & Central Asia	**0.4**	**880,000**	**0.6**	**1,300,000**	**0.8**	**1,400,000**
Russian Federation	0.7	530,000	1.1	860,000	na	na
Ukraine	1.2	300,000	1.4	360,000	na	na
Latin America	**0.5**	**1,400,000**	**0.6**	**1,600,000**	**0.6**	**1,700,000**
Brazil	0.6	620,000	0.7	660,000	na	na
North America	**0.6**	**940,000**	**0.6**	**1,000,000**	**0.6**	**1,000,000**
Canada	0.3	48,000	0.3	56,000	na	na
United States of America	0.6	890,000	0.6	950,000	na	na

Source: UNAIDS, 2003 and 2004 Epidemic Updates

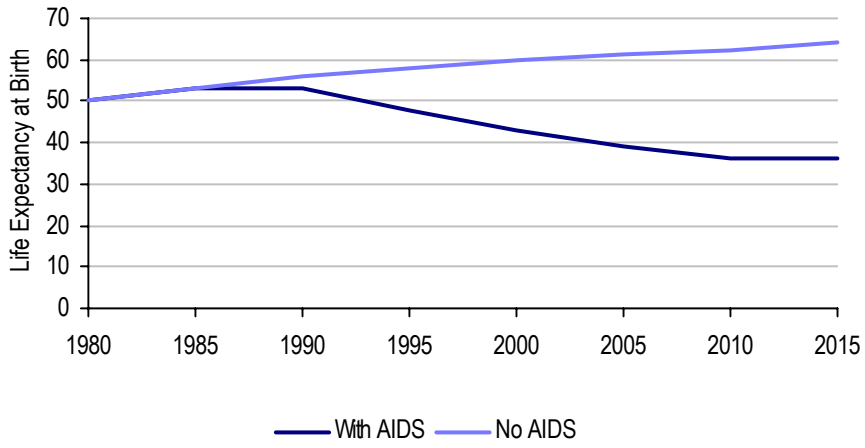
1.1.1 What is the Economic Significance of the Disease?

HIV/AIDS strikes working-age members of society, hindering successful economic development and company profitability

HIV/AIDS shares some of the characteristics of other diseases, such as a time lag between illness and consequent AIDS death (on average 6-10 years), an extended period of morbidity, and the way in which onset can be influenced by general health levels, and nutritional and sanitary conditions. However, in our opinion, two main factors set HIV/AIDS apart: (1) the time lag between infection and illness, when the disease can be unidentified yet contagious; and (2) the fact that it primarily affects people in the prime of their lives (15-49 year olds). These specific characteristics mean that if left to spread unchecked, we believe AIDS can hinder the successful economic development of countries and the profitability of companies, as it strikes at the heart of working-age members of society. Furthermore, a delayed economic and social impact arises as a result of children losing their parents, and being deprived of basic parenting as well as being forced to leave school prematurely without basic skills.

[21] This paragraph draws on the most recent UNAIDS update, published in December 2004.

Chart 2: HIV/AIDS Impact on Life Expectancy in Southern Africa



Source: USAID (2003). HIV/AIDS in Southern Africa: Background, Projections, Impacts and Interventions

A working paper by the World Bank looked at the economic impact of HIV/AIDS in 30 Sub-Saharan African countries, and projected a decrease in GDP growth of 0.8 to 1.4% per year[22]. Elsewhere, an IMF paper projected the impact on the GDP of South Africa to be c1.8% per year[23].

Currently, half of all new HIV infections occur in the 15-24 year old age range. Given that the number of AIDS deaths peaks 6-10 years after HIV infection, this also often means that mortality peaks as the affected population reaches young-to-mid-adulthood, normally the height of economic productivity. This almost inevitably has an implication for business insofar as the increased levels of mortality and ill-health in the employee population can potentially damage workforce productivity and increase employment costs through any, or all, of the following ways:

- Increased medical care, benefits payments, and insurance premiums;
- Higher absenteeism due to sick leave, caring for ill relatives, and funeral attendance;
- Costs of recruiting and training replacement workers, and accidents as a result of illness or inexperienced new staff;
- Increased vacancy rates, loss of experience, and disruption to production;
- Commitment of senior management time;
- Poor morale.

[22] The Macroeconomic Impact of AIDS in Sub-Saharan Africa, Mead Over, The World Bank. Technical Working Paper, No 3, 1992.

[23] For example, see the Economic Consequences of HIV/AIDS in South Africa, M. Haacker, International Monetary Fund, Washington, 2002. With HIV/AIDS in a steady state, in an open economy, this paper projected the loss in per capita GDP to be 1.8% for South Africa.

1.1.2 Where is the Problem[24]?

HIV/AIDS initially establishes itself among high-risk population groups

The epidemiology of HIV indicates that before the disease becomes endemic, i.e. establishes itself in the general low-risk population, it will have established itself among *high-risk groups*[25], for example, those associated with drug use, prostitution, and homosexuality[26]. The degree to which these high-risk groups mix with the general population determines the speed and extent of the spread of the epidemic, and, thus, how "mature" it is.

Prevalence has been rising in every region of the world

The number of people living with HIV has been rising in every region of the world, though its distribution is geographically diverse and different regions are experiencing different stages of the epidemic. National prevalence in China and India is currently low: 0.2% in China and 0.4-1.3% in India - but these are the world's most populous countries with 2.25 billion people between them. Even small percentage infection rates result in significant numbers of affected individuals. A closer focus also reveals that both appear to have extremely serious epidemics in concentrated locations[27].

Table 2: Varying Modes of Transmission and Infected Populations Estimates

Prevalence estimates vary widely

	Main Mode of Transmission	Estimate	Low Estimate (A)	High Estimate (B)	Range (B-A)
China	Drug use, contaminated blood supplies, prostitution.	**840,000**	430,000	1,500,000	1,070,000
India	Heterosexual sex, prostitution, drug use	**5,100,000**	2,500,000	8,500,000	6,000,000
Russian Federation	Drug use, moving to sexually transmitted infection.	**860,000**	420,000	1,400,000	980,000
Brazil	Heterosexual sex, sex between men, prostitution, drug use.	**660,000**	320,000	1,100,000	780,000

Source: UNAIDS. Data as at end 2003, estimated in July 2004.

The epidemic is considered to be mature in Sub-Saharan Africa

As the above table illustrates, estimates of current prevalence range widely. Inevitably, prevalence estimates are based on incomplete data, as only a minority sub-sample of the population is tested for HIV. Additionally, assumptions have to be made about the dynamics of the epidemic, such as its maturity, sexual mixing and the extent of drug use. This limited sample then serves as the basis for extrapolating the prevalence to the wider population. Minor adjustments to the original assumptions (even if well within the realm of plausibility) can lead to substantial discrepancies in national prevalence numbers.

[24] The following sections draw heavily on the UNAIDS Epidemic Update 2004

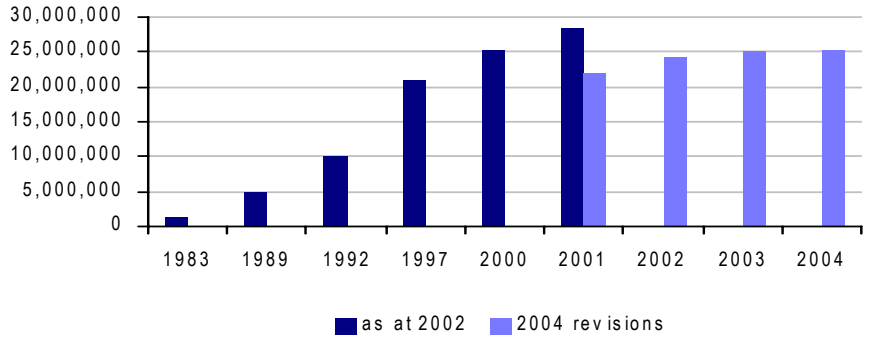
[25] These groups are frequently referred to as Injecting Drug Users - 'IDUs', Commercial Sex Workers - 'CSWs', Men who have sex with Men - 'MSM'

[26] One critical offshoot of this is the instance of long-distance truck transportation, which, combined with prostitution, acts as a vector of transmission across long distances.

[27] UNAIDS Epidemic Update 2004

Sub-Saharan Africa: The epidemic in Africa is considered to be mature, or generalised, having spread beyond specific, high-risk groups into the mainstream population. Heterosexual transmission is now the predominant mode of HIV transmission. Sub-Saharan Africa remains by far the worst affected region, with 25.4 million [23.4 million–28.4 million] people living with HIV at the end of 2004, compared with 24.4 million [22.5 million–27.3 million] in 2002. Just under two-thirds (64%) of all people living with HIV live in this regions, as do more than three-quarters (76%) of all women living with HIV.

Chart 3: People Living with HIV/AIDS, Sub-Saharan Africa



Source: UNAIDS 2002, 2004

At this stage of the African epidemic, women are being affected disproportionately, and the gap in HIV prevalence between men and women is growing. At the beginning of the epidemic, women living with HIV were vastly outnumbered by men. But today there are, on average, 13 infected women for every 10 infected men[28].

Before considering the current HIV/AIDS situation in other countries, it is worth noting the publication of several high-profile reports on this subject. In 2002, projected HIV/AIDS prevalence levels in China, India and Russia made headlines following the publication of two research reports from the National Intelligence Council (NIC)[29] and in an article by Nicholas Eberstadt in Foreign Affairs[30]. Both of these reports indicated that these regions were set to become the "next wave countries" for HIV/AIDS, and assumed the epidemics to be mature and to follow the infection patterns observed in Africa.

[28] Stover, 2004, in UNAIDS 2004

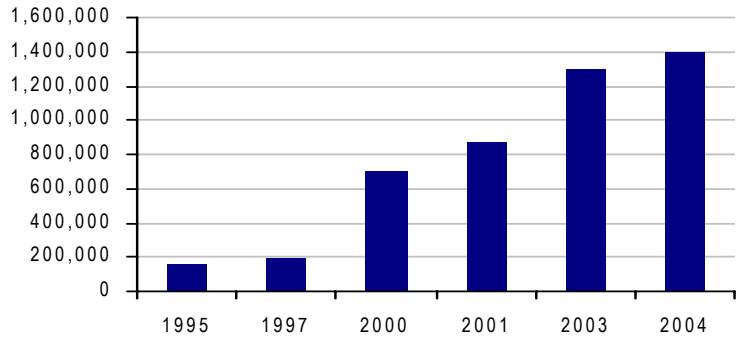
[29] National Intelligence Council, 2002. The next wave of HIV/AIDS: Nigeria, Ethiopia, Russia, India and China.

[30] Eberstadt N, 2002. The future of AIDS. Foreign Affairs, 81.

Eastern Europe and Central Asia[31] In Eastern Europe and Central Asia the number of people living with HIV has risen dramatically in just a few years—reaching an estimated 1.4 million [920,000–2.1 million] at the end of 2004. This is an increase of more than nine-fold in less than ten years. Diverse HIV epidemics are underway in this region. The most serious and firmly-established epidemic is in **Ukraine**, which is experiencing a new surge of reported infections, while the **Russian Federation** is home to the largest epidemic in the entire region (indeed, in all of Europe). However, HIV is unevenly distributed in Russia, with about 60% of all HIV infections to date having been reported in just 10 of the country's 89 regions.

The most severe epidemics exist among the youth populations of Ukraine and the Russian Federation

Chart 4: People Living with HIV/AIDS, Eastern Europe and Central Asia



Source: UNAIDS 1998, 2000, 2001, 2003 and 2004 Epidemic Updates

Most of the epidemics in this region are still in their early stages and the vast majority of people living with HIV in this region are young; more than 80% of the reported infections are among people below the age of 30 (compared with 30% in Western Europe). Sexual transmission is increasing in each of the most seriously-affected countries, indicating that the wider population is beginning to be affected. According to UNAIDS, the problem is exacerbated by the relatively large numbers of young people injecting drugs.

East Asia[32]**:** Although moving at a varied pace, HIV has spread to all of **China**'s 31 provinces, autonomous regions and municipalities. In some, such as Henan, Anhui, and Shandong, HIV was already spreading a decade ago among rural people who sold blood plasma in unsanitary conditions. Elsewhere, the virus has become established among injecting drug users and, to a lesser extent, prostitutes and their clients[33]. Sexual transmission of HIV from injecting drug users to their sex partners is likely to be the next stage of the epidemic in China. UNAIDS estimates that 10 million people in China may be infected with HIV by 2010, unless effective action is taken.

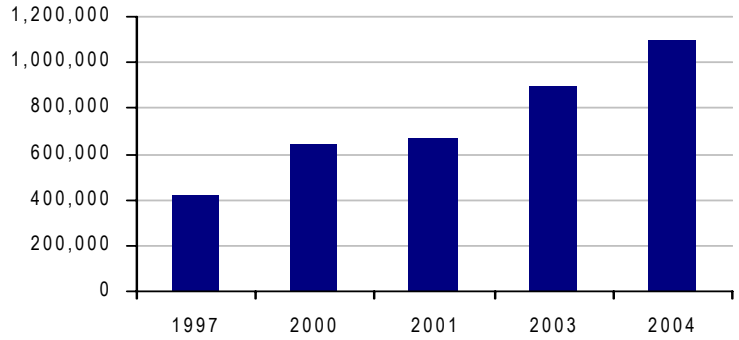
Injecting drug users are the primary transmitters of HIV/AIDS in China

[31] Includes: Russian Federation, Ukraine, other former USSR countries, Czech Republic, Poland, Belarus, Bulgaria, Slovenia, Slovakia, Hungary, Romania

[32] China, Hong Kong, Japan, Korea, Mongolia

[33] Zang, Ma and Xia, in UNAIDS Epidemic Update 2004

Chart 5: People Living with HIV/AIDS, East Asia

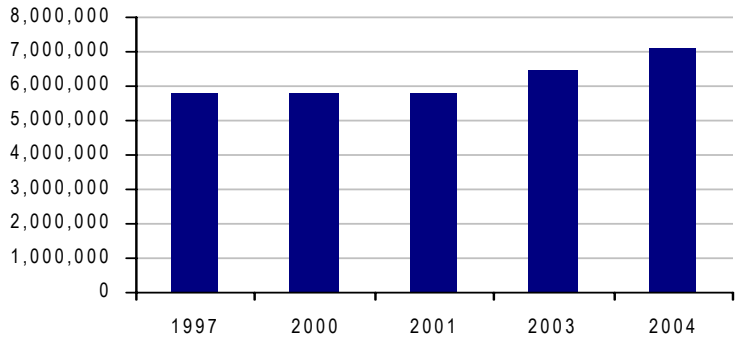


Source: UNAIDS 1998, 2000, 2001, 2003 and 2004 Epidemic Updates

South and South East Asia[34]**: India** has the largest number of people living with HIV outside South Africa, estimated at 5.1 million in 2003. Most infections are acquired sexually, but a small proportion is acquired through injecting drug use. India's epidemics are even more diverse than China's: serious epidemics are underway in several states. In Tamil Nadu, HIV prevalence of 50% has been found among prostitutes, while in each of Andhra Pradesh, Karnataka, Maharashtra and Nagaland, HIV prevalence has crossed the 1% mark among pregnant women. In Manipur, an epidemic driven by injecting drug use over the past decade has acquired a firm presence in the wider population[35].

Infections in India are primarily driven by sexual activity

Chart 6: People Living with HIV/AIDS, South and South East Asia



Source: UNAIDS 1998, 2000, 2001, 2003 and 2004 Epidemic Updates

[34] Includes: India, Pakistan, Thailand, Vietnam and Indonesia

[35] UNAIDS/WHO, 2003

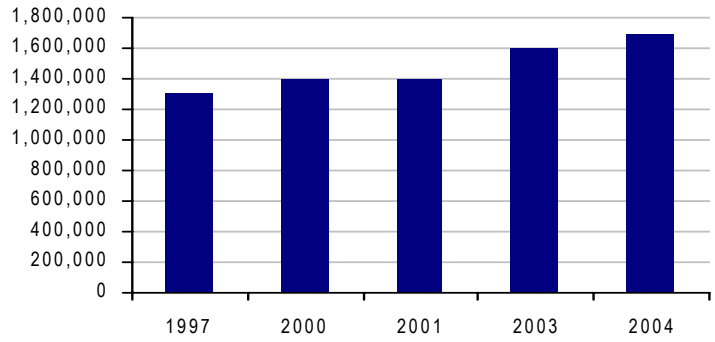
HIV prevalence is rising sharply in several areas where it had stayed low for many years. In **Indonesia, Nepal** and **Vietnam**, rapid, recent rises in HIV infection among drug users appear to have spurred subsequent rises in HIV infection among non-injectors, leading to wider epidemics. However, in **Thailand**, the number of new infections fell from a peak of around 140,000 a year in 1991, to around 21,000 in 2003. This remarkable achievement came about mainly as a result of the Government instituting a '100% condom programme'[36], which enforced condom use in all brothels. Despite the success of the government's policies, mounting evidence of a resurgence in HIV infection rates – largely among the spouses of clients of prostitutes, and among injecting drug users and migrants – warns against premature complacency.

Proactive government policy in Thailand has successfully brought down prevalence rates

Latin America: Two countries in this region—**Guatemala** and **Honduras**—have national adult HIV prevalence of more than 1%. But lower prevalence in other countries disguises the fact that serious, localised epidemics are also underway in several other countries, particularly **Brazil**, which accounts for more than one-third of the people living with HIV in Latin America. **Brazil's** epidemic has dispersed into all regions of the country, and displays some variation. At first mainly affecting homosexual men and then injecting drug users, the disease has grown more heterogeneous. Heterosexual transmission is now responsible for a growing share of HIV infections, with women increasingly affected[37].

Serious localised epidemics exist in Brazil, with heterosexual transmission increasing

Chart 7: People Living with HIV/AIDS, Latin America



Source: UNAIDS 1998, 2000, 2001, 2003 and 2004 Epidemic Updates

[36] UNAIDS Epidemic Update, December 2003, Asia and the Pacific.

[37] Marins et al, 2003; UNAIDS/WHO, 2003

1.1.3 What is the Significance for the Global Economy?

Sub-Saharan Africa currently accounts for 11% of the world's population and approximately 1% of global GDP

The significance of increasing prevalence trends across the globe becomes apparent if infection rates are put into an economic context. Table 3 compares infection rates with key economic data across selected countries and regions. Whereas Sub-Saharan Africa, and South Africa in particular, account for a disproportionate share of the current disease burden, the region currently accounts for 11% of the world's population and its economic importance is modest. It currently contributes just 1% of global GDP (based on 2002 figures) and, unlike other regions such as Asia, is therefore unlikely to be a driver of future global growth.

Regions with rising prevalence rates are significant contributors to world GDP and important marketplaces for manufacturing and outsourcing

By contrast, Brazil, Russia, India and China between them account for over 42% of the global population and 8% of 2002 global GDP. Furthermore, China and India are arguably two of the world's most important marketplaces, and companies increasingly rely on China to manufacture goods and on India's English-speaking population to outsource services. Many companies also have extensive supply chains in these areas on which businesses are extremely reliant.

Table 3: The Economic Significance of HIV/AIDS

	% of Global GDP, Current US$, 2002	% of World Population, 2003 estimate	% of World Population Living with HIV/AIDS	Real GDP Growth, 2006E
Sub-Saharan Africa	**1.0%**	**11.2%**	64.7%	
South Africa	0.3%	0.7%	14.3%	3.4%
East Asia & Pacific	**5.7%**			
China	3.9%	20.5%	2.3%	7.0%
Japan	12.4%	2.0%	0.03%	1.5%
South Asia	**2.0%**			
India	1.6%	17.0%	14.01%	6.8%
Thailand	0.4%	1.0%	1.57%	6.0%
Europe & Central Asia	**3.5%**			
Russian Federation	1.1%	2.3%	2.41%	5.0%
Ukraine	0.1%	0.8%	1.01%	na
North America				
United States	32.1%	4.6%	2.63%	3.0%
Latin America and Caribbean	5.2%			
Brazil	1.4%	2.8%	1.8%	4.1%
Source	*World Bank*	*World Bank*	*UNAIDS*	*UBS*

Source: World Bank, UNAIDS[38], and UBS

As HIV/AIDS becomes an issue for countries or regions contributing a substantial share of global GDP, or, perhaps more importantly, those that are expected to contribute significantly to future global growth, will the disease become a significant business risk for those international companies whose profitability and growth depends on these regions? Furthermore, to

[38] UNAIDS: this refers to the spreadsheet of prevalence at regional and country level on the UNAIDS website. It was published in July 2004, and refers to estimated prevalence rates at the end of 2003.

what extent will there be additional negative repercussions for the global economy if the spread of the epidemic significantly affects global development[39] and poses a threat to global security[40]?

Brazil, Russia, India and China are strategically important for a large number of multinationals

The BRIC countries (Brazil, Russia, India and China) repeatedly emerge in company commentary as being geographical markets of strategic importance. For instance, **BP** has confirmed that it "responded to political events with investments in China and Russia[41]". The 50% stake that it acquired in **TNK BP**, the third-largest integrated oil company in Russia, is "comparable in production size to the former Amoco before our merger". **TNK BP** is based in Irkutsk Oblast, "one of the Russian regions hit hardest by the worsening HIV epidemic [42] ". Appendix 1 illustrates additional examples of the importance of these regions to companies such as **Dell**, **IBM**, **P&G**, **Colgate Palmolive** and **Astra Zeneca**.

Acquisition activity is strong in Brazil, Russia, India and China

A brief survey of recent acquisition activity relating to Brazilian, Russian, Indian and Chinese companies reinforces the growing economic significance of these countries. This exercise resulted in Appendix 2, which indicates that some of the key sectors for acquisitions are:

- **Brazil:** mining, software and service industries
- **Russia:** raw materials and commodities
- **India:** manufacturing and service industries
- **China:** manufacturing, commodities, consumer staples and service industries

The majority of these sectors rely on significant manpower and offer limited opportunities for automation. As such, we believe they could all be vulnerable to HIV-infected employees, which in turn can impact a company's wage costs, productivity and ultimately its profitability.

These trends point to a key question: can companies active in these regions take any action to prevent them from following the path of companies in Sub-Saharan Africa? We believe firms that have lived through the learning curve of doing business in, for example South Africa, are likely to be at an advantage in other countries, even though the epidemic has different regional characteristics.

[39] Bjorn Lomborg, Global Crises, Global Solutions, Chapter 2 (Communicable Diseases, by Anne Mills and Sam Shillcutt). Cambridge, 2004, p. 87.

[40] ICRG Conference, November 8th-9th 2002. See www.yale.edu/icrg/conference.html

[41] BP Annual Report 2003, p. 19. See www.bp.com.

[42] The website of the Russian Red Cross. See www.aro.ru

Section 1.1 - Summary

In 2004[43], estimates indicate that between 36 and 44 million people were living with HIV. During that year alone, it is estimated that 5 million new infections occurred and 3 million people died from the disease. The HIV/AIDS epidemic is generalised in a significant number of countries in Sub-Saharan Africa[44]; infections are reported to be increasing in Brazil, Russia, India and China, and there are regional instances of the disease progressing from nascent to concentrated in segments of these populations. It may be too early to say that HIV/AIDS is about to become generalised beyond Sub-Saharan Africa, but we believe the risks deserve attention from the business community. Of particular importance for the global financial markets is the spread of the disease in regions that account for 42% of the world's population and a significant portion of global GDP.

[43] UNAIDS 2004 Update

[44] See Table of Country-Specific HIV/AIDS Estimates and Data, end 2003. UNAIDS, as Published in July 2004.

1.2 Prevalence – Looking to the Future

1.2.1 Future Global GDP Growth

Table 4 presents a simulation exercise undertaken to give some idea of the potential significance of the economies of Brazil, Russia, India and China in future years. It projects their potential contribution to global GDP over the next 10, 20 and 30 years, on the basis of two key assumptions: (1) the UBS 2006E growth rates for Brazil, Russia, India and China are taken as the average growth rates for the next 30 years; (2) the growth rate for the aggregate of countries not listed in Table 4 ("rest of world"), is assumed to be the same as the US growth rate[45].

Table 4: Simulation: the impact of relative growth rates on % share global GDP

	% of Global GDP, Current US$, 2002	% of World Population, 2003 estimate	% of World Population Living with HIV/AIDS, 2003	Real GDP Growth, 2006E	In Ten Years	In Twenty Years	In Thirty Years
South Africa	0.3%	0.7%	14.3%	3.4%	0.3%	0.3%	0.3%
China	3.9%	20.5%	2.3%	7.0%	5.6%	8.0%	11.2%
Japan	12.4%	2.0%	0.0%	1.5%	10.5%	8.8%	7.3%
India	1.6%	17.0%	14.0%	6.8%	2.2%	3.1%	4.3%
Thailand	0.4%	1.0%	1.6%	6.0%	0.5%	0.7%	0.9%
Russian Federation	1.1%	2.3%	2.4%	5.0%	1.3%	1.5%	1.8%
Brazil	1.4%	2.8%	1.8%	4.1%	1.5%	1.7%	1.8%
United States	32.1%	4.6%	2.6%	3.0%	31.7%	30.9%	29.5%
Rest of World	46.8%	49.0%	60.9%	3.0%	46.2%	45.0%	43.0%

Source: UBS, World Bank, UNAIDS

Brazil, Russia, India and China are likely to be significant contributors to future global GDP growth

In 2002, according to World Bank data for percentage shares of national GDP, the BRIC economies accounted for 8% of global GDP. Based on the assumptions above, after 10 years, their share of global GDP would increase to 11%, and after 20 years, to 14%.

The above table can be used as the basis of a simple HIV/AIDS "impact assessment". If we hypothesise that HIV/AIDS trims[46] 1% off any given country's annual GDP growth rate (for the purpose of this methodology we select China as one of the more significant countries in terms of its projected contribution to global growth), and project its share of global GDP in the presence of HIV/AIDS on the basis of the new (lower) assumed growth rate, we find that its share of global GDP growth drops to 10% after 10 years (versus 11%) and 13% after 20 years (versus 14%). This experiment, further illustrated by the simulation in Table 4, indicates that, if anything should slow the BRIC growth engine to a moderate extent over the medium term, there would be a discernible impact on global growth patterns.

[45] Note that this is not an official projection of the UBS Economics team: UBS does not publish long-range forecasts.

[46] We select 1% as a convenient round number, and no assumptions are made regarding the relationship between HIV/AIDS prevalence rates, and the associated deceleration in GDP growth.

1.2.2 Forecasting AIDS Infection

Forecasting HIV prevalence is imprecise and unreliable

There have already been a number of research studies demonstrating how HIV/AIDS slows economic growth as prevalence rises[47]. A missing piece of critical information, however, is where HIV/AIDS prevalence rates will be 10, 20 and 30 years hence. Predicting HIV prevalence rates presents challenges, just as does forecasting macro-economic growth. However, there are considerably fewer experts attempting it. As with all projections, future HIV prevalence rests on numerous assumptions. Long-range projections, in particular, are sensitive to the initial assumptions about the status of the epidemic. If an assumption is made that all the infections currently known in Russia, for example, exist in the general population, the projected outcome would be significantly different than if all currently known infections are believed to exist solely in high-risk groups.

A wide range of prevalence forecasts exists

In 2002, projected HIV/AIDS prevalence levels in China, India and Russia made headlines following the publication of two research reports from the National Intelligence Council (NIC)[48] and in an article by Nicholas Eberstadt in Foreign Affairs[49]. Both of these reports indicated that these regions were set to become the "next wave countries" for AIDS and assumed the epidemics to be mature and to follow the infection patterns observed in Africa. These projections are shown in Tables 5 and 6.

Table 5: The Next Wave of HIV/AIDS, NIC 2002

	Numbers Infected (000)		Adult Prevalence Rate (%)		Population Size (000)		
	Low Estimate, 2010	High Estimate, 2010	Low Estimate, 2010	High Estimate, 2010	2004	2010	2015
China	10,000	15,000	1.3%	2.0%	1,304,130	1,357,600	1,401,346
India	20,000	25,000	3.0%	4.0%	1,073,345	1,166,258	1,239,325
Russia	5,000	8,000	6.0%	11.0%	142,411	138,450	135,248

Source of Population Stats: © Copyright and Database Right Euromonitor 2005
Source of HIV/AIDS Projections: The Next Wave of HIV/AIDS: Nigeria, Ethiopia, Russia, India, China. National Intelligence Council, Sept 2002

Table 6: The Future of AIDS, Eberstadt, 2002

	Numbers Infected (000) by 2025			Population Size (000)		
	Mild Epidemic	Intermediate Epidemic	Severe Epidemic	2004	2010	2015
China	32,000	70,000	100,000	1,304,130	1,357,600	1,401,346
India	30,000	110,000	140,000	1,073,345	1,166,258	1,239,325
Russia	4,000	13,000	19,000	142,411	138,450	135,248

Source of HIV/AIDS Projections: The Future of AIDS. Nicholas Eberstadt, November/December 2002. Published by the Council on Foreign Affairs

Both papers give a range of model-based estimates, and, given current infection rates and trends in UNAIDS data, in our view, a few of the numbers at the lower end of the projected ranges do not look beyond the bounds of

[47] For example, see the Economic Consequences of HIV/AIDS in South Africa, M. Haacker, International Monetary Fund, Washington. 2002. With HIV/AIDS in a steady state, in an open economy, this paper projected the loss in per capita GDP to be 1.8% for South Africa

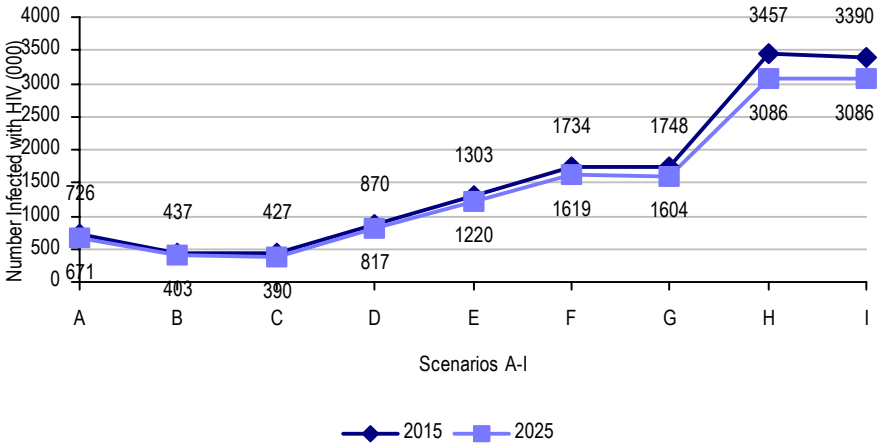
[48] National Intelligence Council 2002. The next wave of HIV/AIDS: Nigeria, Ethiopia, Russia, India and China.

[49] Eberstadt N, 2002. The future of AIDS. Foreign Affairs, 81.

possibility. These two landmark studies are not directly comparable: one study projects out to 2010, and the other to 2025.

Other, more cautious projections exist. For example, The Transnational Family Research Institute in Russia ran nine scenarios (shown as A through I in Chart 8) for 2015 and 2025. This study projects a worst-case (see Scenario H) infection rate of 3.5 million infections in 2025 (3.1 million in 2015), consistent with Eberstadt's "mild epidemic" scenario. It does not assume the epidemic to be already established in the general population and, as a result, estimated future prevalence rates are lower that the NIC and Eberstadt studies. We believe actual future prevalence figures are likely to lie somewhere in the middle of the range.

Chart 8: TFRI (2003) HIV/AIDS Projection Scenarios – Russia



Source: The Transnational Family Research Institute, 2003. See http://demography.narod.ru/di/en

While the exact number of HIV cases and ultimate prevalence rates remain a subject of considerable debate, we draw three main conclusions about the situations in Brazil, Russia, India and China: (1) these regions are all key to future global economic growth; (2) unless present trends are reversed, it appears likely that the epidemic will increasingly cross into the general population; (3) prevalence rates are expected to vary significantly among countries and within regions.

Section 1.2 - Summary

Whilst it remains extremely challenging to forecast future HIV/AIDS prevalence with any certainty, existing estimates indicate increasing infection rates beyond Sub-Saharan Africa. We consider the spread of the disease in countries such as Brazil, Russia, India and China a source of global economic risk, as these regions are forecast to be significant contributors to future global GDP growth.

Section 2 – How does HIV/AIDS Affect Companies?

2.1 Frameworks for Analysis

Given the dearth of reliable data, our approach to gauging the impact of HIV/AIDS on companies has been to start with the better-known experience of South African companies, principally in the mining sector. Note that South Africa was selected because of its high prevalence rates[51] and because this is where firms are already encountering the day-to-day impacts of HIV/AIDS. (See Section 5). From this, we have extrapolated the likely impact on firms working in other locations projected to experience epidemics. This approach clearly has its limitations, since the impact of an epidemic on individual firms will vary most obviously by industry, but also by the specifics of culture, public health policy and demographics, to name but some of the possible influences[52]. Furthermore, even in South Africa, where there is relatively long experience of HIV/AIDS, in our view attempts to evaluate the impact of HIV/AIDS on business have tended to be relatively "ad hoc".

"Our initial actions in Africa were driven by a clear business case. For example, in one country, we observed that on any given day 10% of our staff were absent because of HIV-related matters[50]"

How a company responds to HIV/AIDS in its workforce can vary according to, amongst other things, its perception of costs and benefits. In turn, the action it takes may influence how the disease affects its staff. Companies can choose to take no action, or they can introduce a range of *intervention programmes* largely focusing on prevention and/or treatment[53]. In the presence of an established epidemic and with no intervention programmes, we believe firms can be expected to experience lower productivity over the medium term as the disease affects the workforce. Intervention may push up labour costs in the short term, but evidence increasingly indicates to us that the direct effects of the epidemic on the business are likely to be smaller.

Companies can choose to implement intervention programmes to tackle HIV/AIDS in their operations

Much of the work on the cost-benefit analysis of corporate intervention has been undertaken in the academic community by Sydney Rosen of Boston University[54]. Less has been produced by the financial community, although the South African office of UBS published two reports in 2003[55]. The first report focused on economic inequality in South Africa and, in so doing, explored the impact of the epidemic on consumer growth. The second report extended the analysis to explore the impact of the epidemic on consumer companies. The following sections draw on all of these sources.

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[50] Mervyn Davies, Group Chief Executive, Standard Chartered Bank.

[51] See for example the UNAIDS 2004 Update for prevalence levels by country and region.

[52] Other potential influences include geograhy, education, mechanisms of infection, local infrastructure, workforce structure, market, product and supply chain.

[53] More detail on these options can be found in Section 5 of the report.

[54] See: Sydney Rosen, Jonathan L. Simon, Donald M. Tea and Jeffrey R. Vincent, July 2000. Care and Treatment to Extend the Working Lives of HIV-Positive Employees: Calculating the Benefits to Business. Also, by the same authors in 2000, The Response of African Businesses to HIV/AIDS.

[55] Sarah Truen and Michael McLintock, UBS. Emerging Consumer Dynamics, June 2003. Coping with AIDS, the Cost to Companies, August 2003.

"AIDS is Your Business"

Sydney Rosen is an assistant professor at Boston University with an applied research portfolio addressing the economic impacts of the global HIV/AIDS epidemic. She is one of the co-authors of the McKinsey award-winning article entitled "AIDS is Your Business" (*Harvard Business Review, 2003*), which highlights that HIV/AIDS is a global problem: "*If your company does business anywhere in the world, be it Russia, China, South Africa or Brazil, AIDS is your business".* Some of the most relevant work in the context of this [F&C/UBS] report is presented in her July 2000 "Care and Treatment" article, which describes a net present value (NPV) approach to evaluating HIV/AIDS costs to business. The model has three inputs (paid sick leave, pension benefits, and recruitment and training costs), which the author believes give a reasonable "baseline" from which to estimate the benefits of corporate intervention policies. The research stresses the need for firms to take an "incidence-based" rather than a "prevalence-based" approach to such analysis, on the basis that a firm becomes liable for the stream of future costs accruing from an infection, from the moment that infection takes place (*incidence*), rather than from when the infection is reported (*prevalence*). The delay between these two points could be up to one year, during which a firm could already be experiencing productivity declines relating to HIV-positive employees.

2.1.1 Analysing the Impact of HIV/AIDS – Accounting Approaches

For companies, we believe the impact of HIV/AIDS on profitability can be framed in terms of the Dupont decomposition, which states that:

ROE[56] **(Return on Equity) = Profit Margin*Turnover*Leverage*Tax Effect**

This well-known framework indicates that a firm may choose to assess the impact of HIV/AIDS on its business by looking at what happens to any of the following financial variables as a result of the disease: profit margins, revenue growth, return on invested capital (= turnover*profit margin), total profit, or ROE[57].

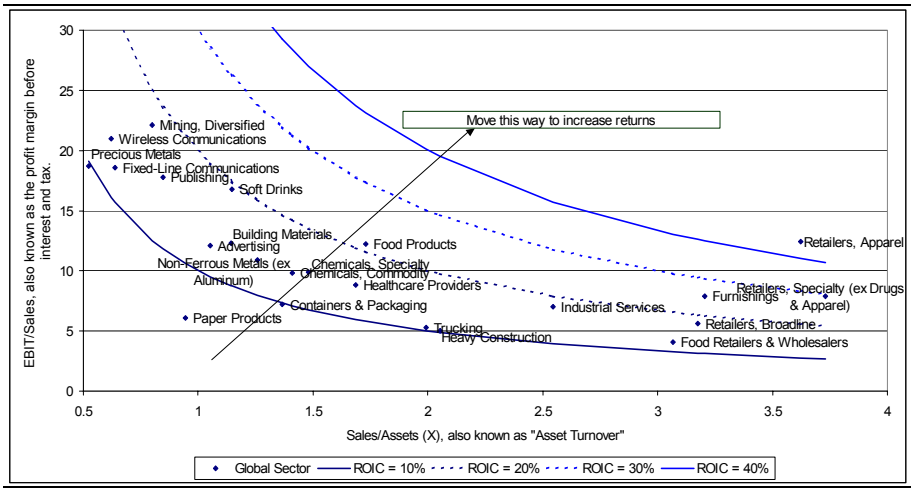
[56] We have described this as an "accounting approach". However, it is also worth observing at this juncture that there is an algebraic link between ROE and a firm's PE ratio if the dividend discount model is used to value the firm.

[57] The nature of the business may determine which metric is most appropriate. Firms looking to improve returns can work on one of the so-called "levers of profitability". 1. Increasing asset turnover by increasing sales volume while keeping the asset base constant, or conversely by reducing assets while keeping sales constant. 2. Maximizing profit margins either by cutting costs while keeping sales constant or by increasing sales while keeping costs constant (see Chart 9). Which lever works more effectively may depend on whether fixed or variable costs are more significant to the business. Firms with low asset-intensity and high variable costs (eg retailers) can cut costs (or put up prices) as an effective way of increasing returns. Firms in capital-intensive businesses (eg mining) with high fixed costs and low variable costs can work on increasing asset turnover and "sweating the assets" to boost returns.

In the context of HIV/AIDS, some metrics of financial analysis may have greater relevance than others in specific industries for those attempting to assess the impact of the epidemic on company fundamentals. For capital-intensive industries, we think the cost of providing treatment (profit margin effect) is likely to be less relevant than the impact of reduced workforce productivity on asset turnover. For service industries, profit-margin effects are likely to be more relevant.

This is illustrated in Chart 9, where each curving line represents a constant level of return on invested capital (*ROIC*) for a given combination of asset turnover and profit margin. A retail firm (bottom right) may typically move more easily from one level of ROIC to the next by changing profit margins, while changes in asset turnover would have to be very large to have any impact on profitability. The reverse applies to the mining and precious metals sectors (top left). Similarly, a profit margin effect arising from a large increase in wage costs would have a greater impact on firms or sectors positioned to the right of the chart, and vice versa.

Chart 9: ROIC = Turnover * Margin



Source: UBS estimates

However, the above framework has serious limitations, in our view. Whereas the "accounting" impacts of reduced productivity (sales per head) or reduced profitability are relatively easily reported, the positive impact of successful AIDS intervention (prevention and/or treatment) programmes within the firm is harder to capture. Traditional accounting frameworks will record these programmes as a cost. It could be argued that in fact these costs should be treated as investments and amortized over a period of time, because the benefit may accrue only over the medium term, whereas the cost of intervention programmes is an immediate cash outlay. In short, the disadvantage of traditional accounting approaches is that they fail to "generate the information companies need to evaluate HIV prevention and

Traditional accounting frameworks fail to capture the positive impact of successful AIDS intervention, recording them only as a cost

treatment programmes as productive investments rather than simply as budgetary expenditures[58]".

2.1.2 Analysing the Impact of HIV/AIDS – NPV Approaches

We believe an NPV approach can help firms capture the cost, net of benefit, of AIDS intervention programmes

Most firms apply a cost-benefit analysis when considering new projects or initiatives. The analysis traditionally considers the net present value (*NPV*) of the costs and benefits involved to inform decisions. We believe this NPV approach is likely to be the most appropriate methodology for firms attempting to capture the cost, net of benefit, of successful HIV/AIDS intervention programmes. A simulation of such an analysis is given in Table 7. The analysis assumes that an international firm is looking to run a five-year project in South Africa for the first time and needs to take some key decisions. The key decision is whether or not to introduce an HIV/AIDS intervention programme providing treatment for employees.

The top row shows hypothetical revenue forecasts for the firm over a five year period. The next two rows are wages costs and "other" costs such as *SG&A.* Wage costs are assumed to be 40% of sales, i.e. this is a relatively labour-intensive business. Total cash flow at the end of year 1 (for instance) for the business is US$50 million, and the present value of this amount at the end of year 1 is US$47 million using a 7% discount rate. This is repeated for each of the five years, giving a net present value (NPV) for the project of US$220 million. The row of "HIV/AIDS costs", are the direct costs of the epidemic to the business. HIV/AIDS costs (estimated at 17% of sales) are based on the worst-case scenario described by **Anglogold** in a detailed case study available on the World Economic Forum (WEF) website[59].

Table 7: Simulated Five-Year Project, using NPV analysis

Year	1	2	3	4	5	NPV of Project
Revenue	100	105	110	105	120	
Wages Costs	40	42	44	42	48	
Other costs	10	11	11	11	12	
HIV/AIDS costs	7	7	7	7	8	
Offset from HIV/AIDS Treatment Programme	3	3	3	3	3	
Total (No Aids)	50	53	55	53	60	
Total (with AIDS)	43	45	48	45	52	
Total (with AIDS, with treatment)	46	48	50	48	55	
Discounted Cashflow (No AIDS)	47	46	45	40	43	220
Discounted Cashflow (With AIDS)	40	40	39	35	37	190
Discounted Cashflow (With AIDS, with Treatment)	43	42	41	37	39	202

Assumptions: wage costs are 40% of sales, other costs are 10% of sales. HIV/AIDS costs are 17% of wages. Treatment offset gives a 38% reduction in HIV/AIDS costs (as per Rosen's Intervention Scenario 3[60]). Discount rate is 7% (based on historical South African lending rates). Units: US$ million. Source: UBS

[58] Sydney Rosen, Jonathan L. Simon, Donald M. Thea, and Jeffrey R. Vincent, June 2000. Care and Treatment to Extend the Working Lives of HIV-Positive Employees: Calculating the Benefits to Business

[59] See the website of the World Economic Forum, www.weforum.org/globalhealth. See also section 2.2.1.

[60] Rosen et al, June 2000. Care and Treatment to Extend the Working Lives of HIV Positive Employees

In the presence of the epidemic, cash flows are shown to decrease (e.g. US$7 million in year 1), and at the end of five years the NPV of the project falls to US$190 million. "Total, with AIDS, with treatment", is the estimate of the direct costs of the epidemic offset by a treatment programme. The US$202 million NPV of the project is still lower than the "no AIDS" case of US$220 million, but is higher than the US$190million "AIDS without action" scenario[61]. The advantages of an NPV approach are that the benefits of treatment are considered as well as the costs. The disadvantages are, as with any NPV approach, that the results are only as good as the assumptions[62].

Simulation results: HIV/AIDS can lead to a decrease in cash flows, which can be partly offset by a corporate intervention programme

Section 2.1 - Summary

Companies operating or likely to operate in the presence of HIV/AIDS face a number of decisions about how to determine and measure the impacts of the disease and how to tackle it. We believe the data available in the South African corporate sector, incomplete though they are, can in theory be combined with established techniques drawn from financial and project analysis to gain some idea of the potential impact of HIV/AIDS and corresponding intervention programmes on business.

[61] While this simulation does not represent a particular company or sector, the assumptions regarding the costs of treatment and the negative impacts of HIV/AIDS are based on real (third party) calculations.

[62] These include accurate forecasts for the costs and benefits, a complete set of inputs, and an accurate discount rate. Additionally, the longer the forecast period, the less accurate the estimated future values are likely to be.

2.2 What has been done in Practice?

The following sections analyse existing information in the public domain relating to the impacts of HIV/AIDS on profit margins, on accounting items that affect profit margins (such as wage costs), on revenue impacts, and on net present value calculations.

2.2.1 Impact on Profit Margins

Companies largely feel the impacts of HIV/AIDS through increased labour costs and productivity declines

HIV/AIDS increases running costs because of its direct impact on the workforce: these include increased absenteeism as people become ill or need to stay at home to take care of family members, and the loss of expertise, skills and experience that may have taken years to build up.

Table 8: List of Key Costs relating to HIV/AIDS[63]

Depending on:	Costs Sustained with HIV/AIDS in Workforce
Health of workforce	Lower productivity
Attrition of workforce	Recruitment and training costs
Compensation structure	Paid sick days Level of health care benefits Death, disability and funeral benefits
Pension arrangements	Change in pension cost depends on structure
Skill-level of workforce	Lost know-how, informal communication channels
Response	Intervention programmes
Management structure	Management time Deterioration in labour relations
Importance of risk control to the business	Insurance premiums Accident rate

Source: UBS; Rosen et al, "AIDS is Your Business", 2003

The following sections review a selection of publicly available evidence of the cost impacts of HIV/AIDS through three different examples: (1) a survey of companies; (2) a cost-benefit analysis; and (3) case study research. Note that the following data highlight the business impacts of HIV/AIDS, but are not directly comparable.

EXAMPLE (1): Results of a survey of South African companies

Healthcare, insurance, retirement and other benefit costs would be expected to rise as a percentage of sales

Table 9 contains the results of a survey[64] of 1,006 South African companies on the economic impacts of HIV/AIDS. The firms were categorised as small, medium and large, and were asked to rank what they felt were the most important impacts of HIV/AIDS on their business. All firms, regardless of size, cited higher employee benefit costs and lower productivity. In addition, large firms cited the costs of treatment programmes and the associated logistical and administrative support, while smaller firms suffered from loss of skills. In terms of impact on a firm's financial statements, these effects would mean that healthcare, insurance, retirement and other benefit costs would be expected to rise as a percentage of sales.

[63] See Section 2.2.2 for further information on the impact of HIV/AIDS on revenues.

[64] The Economic Impact of HIV/AIDS on Business in South Africa 2003. Researched and Compiled by the Bureau for Economic Research (BER) and Funded by the South African Business Coalition on HIV & AIDS (SABCOHA). Published January 2004.

Table 5: Survey of 1006 South African Companies

Importance	Small firms: <100 employees	Medium firms: 100><500 employees	Large firms: >500 employees	All
1st	Lower productivity/ increased absenteeism	Lower productivity/ increased absenteeism	Higher employee benefit costs	Lower productivity/increased absenteeism
2nd	Loss of experience and vital skills	Higher employee benefit costs	VCT or HIV/AIDS awareness programme	Higher employee benefit costs
3rd	Higher labour turnover rates	Loss of experience and vital skills	Lower productivity/ increased absenteeism	Loss of experience and vital skills
4th	Higher employee benefit costs	Higher labour turnover rates	HIV/AIDS treatment/ provision of ART	Higher labour turnover rates
5th	Higher training and recruitment costs	Higher training and recruitment costs	Research of impact into HIV/AIDS	Higher training and recruitment costs

Source: The Economic Impact of HIV/AIDS on Business in South Africa. 2003. BER & SABCOHA, 2004

EXAMPLE (2): Assessing costs using a cost-benefit analysis approach

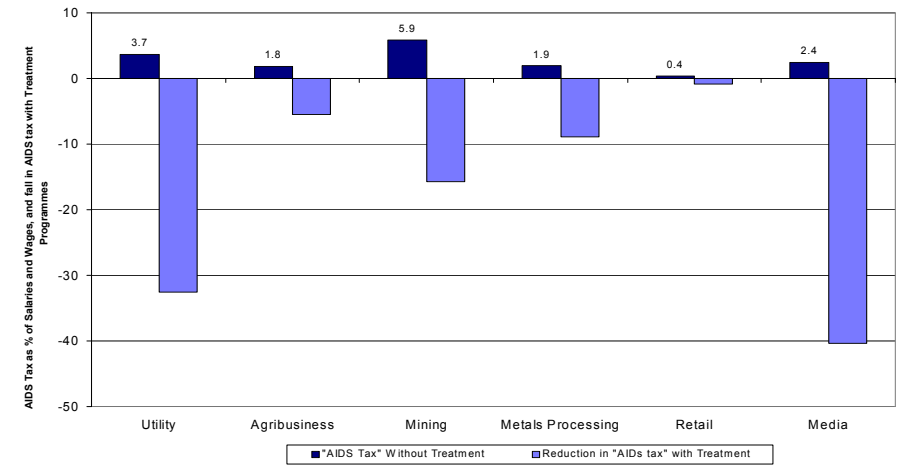
Research by Sydney Rosen et al in 2003[65] calculated an "AIDS tax" for six firms across a variety of industries. The research included a cost-benefit analysis to estimate the cost impacts of HIV/AIDS on their business, with and without AIDS treatment programmes. Chart 10 illustrates how the "tax" varies with each industry-representative firm, ranging from 0.4% of total wage costs for the retail sector to 5.9% of wage costs for mining.

Summary of Methodology used in Cost-Benefit Analysis

Rosen looked at six firms in a range of sectors. For each of these firms, the authors carried out a survey to estimate prevalence rates. Having classified the workforce according to HIV/AIDS risk groups, the authors estimated AIDS incidence. (Prevalence numbers include only infections already detected by a test. Incidence includes infections not yet detected). This permitted the writers to forecast infections and deaths over a ten-year period. The next step was to estimate direct and indirect costs on the basis of information from company human resources managers, finance executives and medical personnel. Finally, the authors calculated the net present value of total costs using the 2001 South African lending rate of 7%. Rosen et al found it difficult to obtain an estimate of the costs, net of the benefit of treatment programmes, because little work has been done by firms on the measurement of the effectiveness of AIDS programmes. The authors therefore assumed a treatment cost of US$500 per patient per year, and a resulting extension of working lives by an average five years. These assumptions fed into estimates of potential net returns to a treatment programme, offsetting the cost of infection, to derive a potential "reduction in AIDS tax estimate".

[65] AIDS is Your Business, Rosen et al, Harvard Business School Publishing Corporation, 2003.

Chart 10: "AIDS Tax" by Sector



An "AIDS tax" has been estimated from a cost-benefit analysis of group of six companies across a variety of sectors

Source: *Chart created from P. 10 table in Aids is Your Business. Sydney Rosen, Jonathan L Simon, Jeffrey R. Vincent, William MacLeod, Matthew Fox, and Donald M. Thea. Harvard Business Review, February 2003.*

EXAMPLE (3): Case study examples

Studies by the World Economic Forum (WEF)[66] offer further evidence and details on HIV/AIDS related costs. The WEF publishes reports submitted by a number of firms looking at the costs of AIDS to their business. Some of these "case studies" make an attempt to project the future costs of HIV/AIDS on the basis of internal data collection programmes. Key findings include:

- **Anglogold**[67] calculated that HIV/AIDS expenses could amount to 8-17% of their payroll by 2009.

- **DaimlerChrysler South Africa** estimated that AIDS-related costs, as a percentage of the total wage bill, could reach 4% in the peak year of infection[68].

Estimating the impact of HIV/AIDS on *EBIT* margins

Although previous data indicate substantial variability in HIV/AIDS cost estimates, we believe there is sufficient evidence to conclude that the presence of HIV/AIDS in the workforce is likely to adversely affect profit margins. The scenario below demonstrates how EBIT margins could be affected by a change in wage bill costs relating to HIV/AIDS. Table 10 illustrates average wage costs for particular sectors, displayed as a

[66] www.weforum.org

[67] As of 2002, when the WEF case study was written, AngloAmerican held 51.5% of AngloGold. In April 2004, AngloGold Limited and Ashanti Goldfields merged to form AngloGold Ashanti Limited, 54% owned by AngloAmerican. The calculations in the WEF Case Study clearly apply to the old structure.

[68] Details of the precise methodology used are not available on the WEF website, which presents summary information only.

percentage of sales for both South African and global companies (where available)[69].

Table 10: Wage Costs as a % of Sales, and EBIT Margins, Selected Global and South African Sectors

	GLOBAL		SOUTH AFRICA	
	WAGES % SALES 2004E	EBIT % Sales 2004E	WAGES % SALES 2004E	EBIT % Sales 2004E
Wireless Communications	42	21	5	29
Advertising	32	12	na	17
Publishing	30	18	na	14
Soft Drinks	30	17	9	19
Healthcare Providers	29	9	na	17
Fixed-Line Communications	29	19	18	24
Industrial Services	24	7	16	6
Retailers, Apparel	21	12	na	16
Retailers, Specialty (ex Drugs & Apparel)	21	8	na	17
Building Materials	19	12	9	34
Chemicals, Specialty	19	10	17	9
Containers & Packaging	19	7	14	9
Furnishings	19	8	na	11
Retailers, Broadline	19	6	5	6
Heavy Construction	16	5	24	5
Chemicals, Commodity	14	10	na	17
Food Retailers & Wholesalers	14	4	na	3
Paper Products	14	6	18	5
Automobiles	13	4.7	na	na
Food Products	13	12	9	10
Precious Metals	12	19	25	15
Mining, Diversified	10	22	na	13
Non-Ferrous Metals (ex Aluminum)	9	11	na	15
Trucking	5	5	6	5

Source: UBS

HIV/AIDS costs can negatively affect EBIT margins

Using the data in Table 10, the simulations below aim to show the effects of a change in the wage bill relating to HIV/AIDS on overall EBIT margins:

- If HIV/AIDS costs are estimated to amount to 17% of a company's total wage bill[70], for the average South African precious metals firm, the average EBIT margin would be expected to fall from 15% to 10%.
- If HIV/AIDS costs went to 4% of the total wage bill[71], the 5% EBIT margin of the average global auto firm's South African business would fall by 0.5%.

Tables 11 and 12 present further potential scenarios of what could happen to EBIT margins, this time adjusting the contribution of HIV/AIDS costs to total wage costs. In Table 11, for example, a hypothetical company has "base-case" wage costs of 20% of sales and "base-case" EBIT margins of 20%. Assume that the wage bill increases with the additional costs of

[69] A selection of Dow Jones Global Industries

[70] See Anglogold case study referred to in Example 3 of 2.2.1. Anglogold projected that HIV/AIDS costs could amount to 8-17% of the wage bill. 17% is its worst-case scenario. Source: Global Health Initiative, Private Sector Intervention Case Example (p. 2), World Economic Forum. www.weforum.org/globalhealth

[71] Based on DaimlerChrysler South Africa's estimates in Example 3.

HIV/AIDS, based on the "worst-case" number cited by **Anglogold** (as above), namely, HIV/AIDS amounts to 17% of the wage bill. In this scenario, EBIT margins fall from 20% to 16.6%.

Table 11: What Happens to EBIT Margins with HIV Costs at 17% of Wage Costs

Wages % Sales	Base-Case EBIT Margin % 0	10	20	30	40
10	-1.7	8.3	18.3	28.3	38.3
20	-3.4	6.6	16.6	26.6	36.6
30	-5.1	4.9	14.9	24.9	34.9
40	-6.8	3.2	13.2	23.2	33.2

Source: UBS

In Table 12, HIV/AIDS costs are estimated to be lower at 8% of the total wage bill. For a firm with "base case" wage costs of 20% of sales and "base case" EBIT margins of 20%, EBIT margins fall from 20% to 18.4%. Note, however, that these simple calculations do not assume firms take any action to offset the additional costs.

Table 12: What Happens to EBIT Margins with HIV Costs at 8% of Wage Costs

Wages % Sales	Base-Case EBIT Margin % 0	10	20	30	40
10	-0.8	9.2	19.2	29.2	39.2
20	-1.6	8.4	18.4	28.4	38.4
30	-2.4	7.6	17.6	27.6	37.6
40	-3.2	6.8	16.8	26.8	36.8

Source: UBS

Where wage costs are a significant portion of a company's overall cost structure, we believe the impact of HIV/AIDS on profitability can be substantial

The above analysis demonstrates to us the very different impacts of HIV/AIDS costs on the profitability of firms with different cost structures. If wages are a significant fraction of costs, the impact on profitability can be substantial. However, there are several potentially offsetting factors. Firstly, if companies operate in HIV-affected regions where wage levels are very low compared to the global average, the additional cost incurred as a result of the epidemic may not be enough to erode the relative cost advantage[72]. Secondly, these scenarios do not take any intervention programmes into account, which may help to offset additional costs.

2.2.2 Impact on Revenues (Turnover)[73]

This section focuses on the possible effects of HIV/AIDS on consumer demand. A company's sales growth is determined by the external demand for its product and by workforce productivity. Estimates of the potential impact of HIV/AIDS on economic growth can serve as a proxy for the impact on individual company sales. Spending patterns vary with the distribution of wealth through the population, so the distribution of the epidemic by wealth cohort has a differential impact on spending patterns. Two effects on spending can be expected to be observed: the "income effect", where

[72] This point is suggested by the wireless sector numbers. It is important to note that there may be many reasons for the difference in wages as a % of sales, such as differences in divisional structures by region.

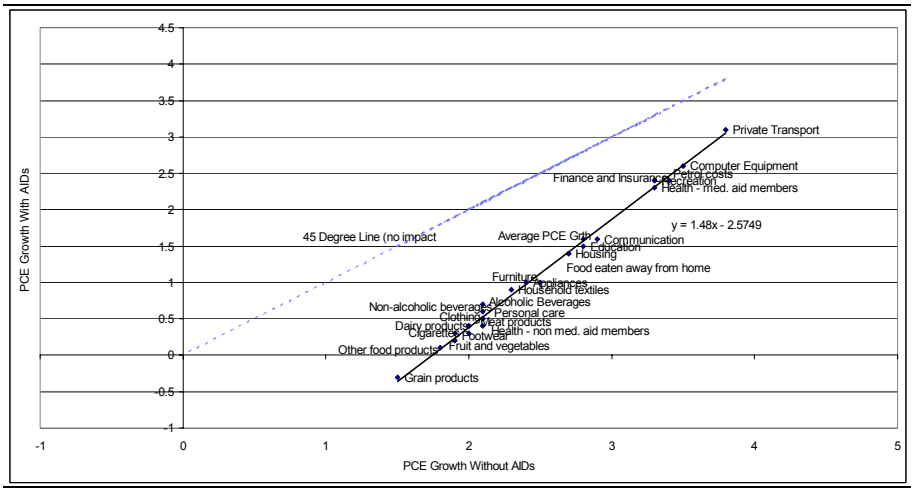
[73] This section draws on work done in 2003 by UBS's South African office.

spending on luxury goods varies with income, and the "headcount effect", where spending on staples is relatively unaffected by income, but is affected by the size of the population.

In a study conducted in 2003 [74] covering consumer industries, UBS estimated that, in South Africa, average per capita expenditure (*PCE*) growth without HIV/AIDS would be 2.8% in 2005 through 2010, but would fall to 1.6% with HIV/AIDS. The impact of this expenditure shortfall on a company's top line is expected to vary by industry, in line with the sensitivity of each industry to the impact of income on spending. This, in turn, depends on the prevalence of the epidemic in different income groups. Chart 11 illustrates how the approximate halving of the average growth rate of PCE from 2.8% to 1.6% (UBS estimate) is unlikely to translate into a 50% reduction in sales growth across all industries.

We believe HIV/AIDS causes a decrease in overall per capita expenditure, but can be expected to affect some sectors more than others, due to differing exposures to consumer spending

Chart 11: PCE Growth With and Without AIDS



Source: Consumer Dynamics, Sarah Truen and Michael McClintock, UBS

PCE without AIDS is shown on X axis. PCE with AIDS is shown on Y axis. If PCE growth, with or without AIDS, were the same, then sectors in the analysis would fall on a 45 degree line. This chart indicates that the line drops, indicating that PCE falls across the board in the presence of AIDS. However it also rotates i.e. PCE falls more than average for many staple sectors, and less than average for sectors such as technology, financial services and private transport.

The chart indicates that the growth rate of per capita expenditure on food items, personal care and clothing, household items and staples could, as a result of the AIDS epidemic, fall by a relatively moderate one-fifth (in the case of private transport) or, in the extreme, from positive to negative (e.g. grain products, from 1.5% to –0.3%). While this stops short of predicting the ultimate impact on corporate "top lines", it suggests that it is reasonable to expect double-digit falls in the sales of some firms.

Perhaps the most significant conclusion to emerge from this work is the slightly counter-intuitive picture illustrated by Chart 11. In normal conditions, a fall in GDP growth tends to hit staples industries less than higher value-added industries because discretionary spending is cut, even as people keep spending on necessities. The work of UBS's South African office suggests that an "HIV/AIDS effect" on GDP growth is not likely to behave like a normal demand shock. Experience to date suggests that HIV/AIDS

The impact of HIV/AIDS on GDP growth is not a "normal" demand shock; spending on staple goods is likely to be harder hit than discretionary spending

[74] Emerging Consumer Dynamics, Sarah Truen and Michael McLintoch, UBS, June 2003

tends to hit lower-income groups harder than higher-income, better educated groups. This means that "headcount effects" are likely to outweigh "income effects", thereby affecting staples more than discretionary or luxury goods. In extrapolating from the South African experience to the global economy, this suggests that differences in the distribution of wealth, as well as in the specific industrial mix of the location concerned, must be important considerations.

An in-depth review of published material found only one example of a company attempting to quantify the impact of HIV/AIDS on the top line. **JD Group**, a South African furniture manufacturer, projected an 18% fall in its customer base as a result of HIV/AIDS[75] .

2.2.3 Impact on Firm Value

DCF analysis can be applied to assess the impacts of HIV/AIDS on firm value….

In instances where a company is in a position to estimate the potential costs of HIV/AIDS, as well as the benefits of any intervention (prevention and treatment) programmes, we believe firms or analysts can employ a discounted cash flow *(DCF)* analysis[76] to assess the value of a business with and without the costs of HIV/AIDS over time.

To date, this technique does not appear to have been widely used for this purpose. This can be attributed to obstacles such as:

- the cost of collecting information
- the difficulty of incorporating costs that cannot be readily observed or quantified (such as any impact on morale and related changes in productivity)
- the inaccuracy of DCF models for firms where intangibles (know-how, brand and so on) are a major part of the business
- the difficulty of forecasting long-term intangible value in general
- the well-known difficulty of forecasting very long-run cash flows
- an accurate estimate of the discount rate (or weighted average cost of capital *[WACC]* for equities)

This is challenging enough in normal conditions. The presence of the epidemic changes the risk profile of the operating environment, and is likely to introduce some volatility into net cash flows, particularly for firms having high operating or financial leverage. Therefore, we believe estimating the discount rate is subject to real uncertainty[77].

[75] Alan Whiteside, cited in USAID, How Does HIV/AIDS Affect African Businesses? Page 6.

[76] See Appendix 3 for a brief explanation of DCF analysis.

[77] The main advantages and disadvantages of DCF analysis, as summarised by the UBS Valuation and Accounting Group, appear in Appendix 3.

….but a DCF analysis is challenging, given the difficulty in amassing the necessary data inputs

Although we think it is relatively straightforward to establish that a high prevalence of HIV/AIDS in any operating environment will reduce economic growth, as well as individual company sales and profits, projecting these impacts on company valuations with accuracy is difficult, given the imprecise nature of much of the data needed to run a full DCF analysis. However, this may become easier over time, at least for some firms in industries that lend themselves more easily to DCF approaches[78], as the amount and quality of data and information improves. For example, **Anglo American** is currently undertaking a detailed HIV/AIDS analysis of the impacts of AIDS on its business and expects to continue work on its model for several more years before reaching a final result.

In the limited instances where firms have tried to estimate the net present value (NPV) of each HIV/AIDS infection, the results can be useful in allowing data users to gain some idea of the scale of the potential impact against the market value or enterprise value *(EV)* of the firm[79]. There are a few *ad-hoc* examples of the NPV of AIDS costs calculated by firms for their South African businesses.

- **Anglovaal Mining (AVMIN):** Another case study on the WEF website illustrates **AVMIN**'s estimates that, in 2002, the NPV of the (potential) cost of AIDS to the company was US$6.1 million. In this case, a calculation demonstrates that this cost amounted to 1.5% of the firm's average South African market capitalisation for 2002[80].

- **DaimlerChrysler South Africa (DCSA):** As referenced in Section 2.2.1, a **DCSA** case study on the WEF website assigns a specific NPV estimate to each new HIV infection, which is calculated at US$31,000 (no further detail or assumptions are given). The same case study states that in 2001, **DCSA** had 4,500 employees with an estimated HIV prevalence of 9%. A simple calculation (workforce*prevalence*NPV per infection) yields an estimate of the total NPV of HIV/AIDS infections for **DCSA**, which equals $12,555,000. This number could be considered relatively modest, especially in the context of the company's global market capitalisation[81].

The sensitivity table below is extrapolated from the **DCSA** case-study, and assumes a "per head" HIV/AIDS cost as a fixed input ($31,000). The analysis compares the impacts of HIV/AIDS costs on firm value for workforces of varying size and different prevalence rates. The base-case simulation sets total HIV/AIDS costs at 3.46% of firm value, with a prevalence rate of 9% and a workforce of 4,500 employees[82].

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[78] DCF approaches tend to work better in capital-intensive industries delivering physical goods, and less well in knowledge-intensive industries.

[79] The market value of the firm is also sometimes called the "enterprise value". It is the sum of the market value of all claims on the business: basically the value of the firm's equity plus the value of the firm's debt plus any other claims.

[80] Source of Market Capitalisation: Thomson Financial Datastream

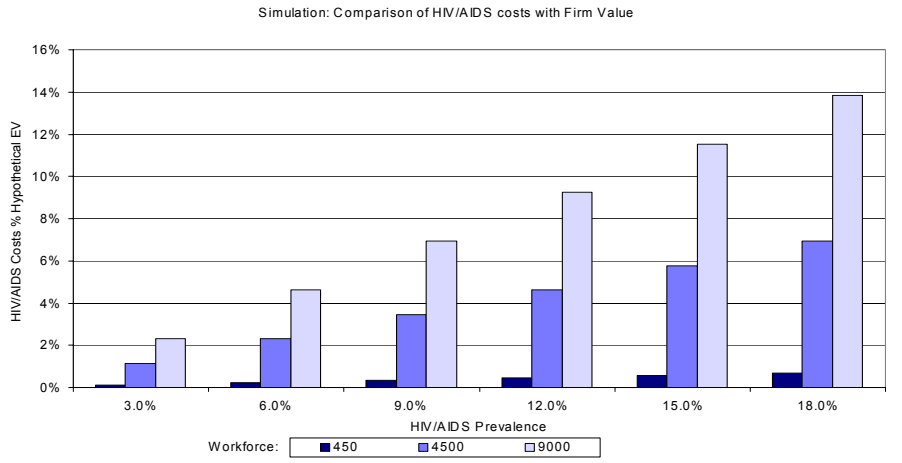
[81] We believe it would be relevant to compare this number with the market capitalisation (or even the EV) of the group's South African business. Unfortunately, this number is not readily available.

[82] Please note that we have used numbers generated by DCSA to generate a general, hypothetical simulation. This analysis does not say anything about DCSA specifically: 9%*4,500*US$31,000 divided by the EV is a hypothetical

Table 13: Simulation: Comparison of HIV Costs with Firm Value

Workforce	HIV/AIDS Prevalence Rates 3.0%	6.0%	9.0%	12.0%	15.0%	18.0%
450	0.12%	0.23%	0.35%	0.46%	0.58%	0.69%
4500	1.15%	2.31%	3.46%	4.62%	5.77%	6.93%
9000	2.31%	4.62%	6.93%	9.23%	11.54%	13.85%

Chart 12: Simulation: Comparison of HIV Costs with Firm Value for Three Workforce Sizes (See above table).



Source: UBS

We believe the results of this simulation could suggest a way of answering an important question for companies operating, or planning expansion into, regions with high HIV/AIDS prevalence: what is the impact of local prevalence rates on business? To answer this question, companies need to ascertain the extent to which the epidemic is affecting their workforce. Whilst prevalence may be estimated[83], the cost of each HIV infection to the firm is the variable that requires the most specific and detailed analysis. It is likely to vary with workforce demographics (e.g. age, resident or migrant origins), firm policy (e.g. degree of care provided), the general health of the local population and the local discount rate. However, once prevalence estimates and the cost of each HIV infection are combined with workforce numbers, it should then be possible for companies to scale these results against the EV of the firm, or its market capitalisation[84].

number selected to give a reasonable "base case" from which to simulate the effect of varying levels of prevalence and numbers of employees.

[83] See Section 5 for a more detailed discussion on prevalence testing.

[84] Scaling the NPV of the cost of HIV/AIDS (calculated as the sum of costs and benefits over time, discounted to the present day at an appropriate discount rate) against a relevant metric should indicate clearly how significant it is for the business. HIV/AIDS costs amounting to an NPV of US$1mn would be highly significant for a firm having an enterprise value of US$1mn, and insignificant for a firm having an EV of US$1bn. In our view it is appropriate to scale the NPV of HIV/AIDS costs against EV (specifically) for two reasons. First, because HIV/AIDS costs are a claim on the business (enterprise) as a whole, and it would therefore not be strictly correct to scale them against, say, the equity market capitalisation of the firm. Secondly, the EV of a firm is defined as the NPV of the sum of all enterprise

Section 2.2 – Summary

There is limited public information on the quantitative impacts of HIV/AIDS on companies. Even in South Africa, where high prevalence levels and the longer experience curve might indicate greater availability of data, and where the headline financial impacts have been both substantial and alarming, data remain largely *ad hoc* and confined to a small number of companies conducting detailed and lengthy analyses. Based on the information that is available, though, it appears evident that HIV/AIDS can increase wage costs and negatively affect profit margins. We also believe HIV/AIDS can decrease per capita expenditure, leading to potential reductions in turnover. With indications that the disease is increasingly spreading to economically and strategically important regions, (see Section 1), we think the pressure is growing on companies to develop more sophisticated tools for monitoring and measuring the extent to which the disease is affecting their business.

cash flows. To compare the NPV of HIV/AIDS costs as defined above against EV is to compare like with like, assuming the input assumptions used for both numbers are reasonable and consistent.

Section 3 – How Does HIV/AIDS Impact Valuations?

3.1 Quantifying HIV/AIDS Risks in Financial Markets

Emerging and hard-to-quantify risks, such as epidemics like HIV/AIDS, remain relatively unfamiliar to business and difficult to report on in financial statements – yet they may have an impact on firms in several ways.

- They may translate into *business* or *operational* risk by prompting changes in the markets for the firm's inputs and products. These effects should, in turn, be reflected in the reported results of the company.
- They may translate into *financial* risk through the recognition of a "risk premium" in the pricing of the firm's debt and equity.

These mechanisms are, of course, ultimately related. If business risk can be quantified in terms of an impact on revenue growth, operating profit margins or access to finance, markets are likely to react to such information either through gradual drift of the share price, or sudden movement if new information appears and is registered. Furthermore, financial markets will likely react negatively to uncertainty surrounding information that may impact financial performance.

Quantifying the effects of HIV/AIDS on financial statements remains difficult

However, as highlighted in Section 2, in practice, we believe even quantifying the effects of HIV/AIDS on a firm's financial statements is difficult because there are substantial "unknowns" relating to both the scale and timing of the disease's impact on a company. Additionally, there may be indirect and unquantifiable effects: it may be possible for an HIV/AIDS treatment programme to lift employee morale and raise performance so as to strengthen the firm's competitive position in its industry, but we consider this virtually impossible to measure. Alternatively, firms offering treatment may suffer from employees who "satisfice[85]"or do the minimum required to avoid dismissal on performance grounds, purely to remain with a firm that offers treatment. This type of behaviour can have a negative effect on productivity.

The financial markets can react to risks ahead of resource, labour and product markets

Although companies continue to struggle with the difficulty of measuring and managing the impacts of HIV/AIDS upon the workforce, this does not necessarily prevent financial markets from reacting to potential risks ahead of resource, labour and product markets. We therefore consider it in the interests of firms exposed to affected regions, and their investors, to assess the likely impact of incipient HIV/AIDS infection on their operations, and on their valuations.

[85] Defined by Webster as "To decide on and pursue a course of action of satisfying the minimum requirements to achieve a goal".

3.2 Is HIV/AIDS Impacting Current Company Fundamentals and Valuations?

In order to carry out this analysis, UBS's Stock Screening Tool[86] was used to match a list of South African industrial stocks (34 South African firms) with developed market "pairs", these being firms in the same sector as the South African firms[87]. This was repeated with the South African companies being paired with a set of emerging market stocks (29 reasonable pairs were found). In our view, there is currently insufficient publicly available information to compare firms affected by HIV/AIDS with firms not affected by the disease. Country- rather than company-specific pairs were therefore selected instead. Note, once again, that South Africa is selected as our example because that is where prevalence is known to be particularly high[88] and because it is where firms are already encountering the day-to-day impacts of HIV/AIDS.

3.2.1 Fundamentals: South Africa and the rest of the world

The profit margin of South African firms was initially compared to the peer groups described above. In addition, as profit margins rarely tell the whole story, we compared ROIC and ROE.

There appear to be no clear differences in analysts' fundamental expectations between South African stocks and their developed- and emerging market peers

The results, summarised in Table 14, are surprisingly unclear. The main message that we can identify is that there appears to be no clear difference in analysts' fundamental expectations between the South African companies and their developed- and emerging market pairs.

Table 14: Summary of Margin and Return Comparisons for South African Companies versus Developed and Emerging Market

	EBITDA Margins	EBIT Margins	ROIC	ROE
SA/Developed	Lower	Unclear	Higher	Unclear
SA/Emerging	Unclear	Slightly lower	Unclear	Unclear

Source: UBS, data as at August 2004

The data samples used could be skewed by a number of factors

Why is this? We believe there are several possible explanations. It may be the case that the South African companies are managing to offset the costs of the epidemic with successful intervention strategies. It may also be that there were simply not enough data to throw light on performance differences between the peer groups. However, we think there may be a more compelling explanation, which we are sadly not in a position to prove.

The firms in our analysis are all listed firms. They do not represent an entire sample of firms in each of the economies, which should, strictly speaking, include a full range of firm "types" operating locally. As such, it is possible

[86] UBS's Stock Screening tool contains valuation and fundamental data for 3500 firms globally. See www.ubs.com/equities/SST

[87] We avoided size-based biases in the peer groups. For instance we made sure that, where possible, very large firms were not consistently matched with very small firms within the available data.

[88] See for example the UNAIDS 2004 Update for prevalence levels by country and region.

that firms with a stock market listing are relatively sophisticated, with reasonably well-developed reporting and control systems relative to the "average firm" operating in the local economy. It is likely that relatively mature, experienced firms are over-represented in the South African sample, simply because our sample does not capture the activity of unlisted firms[89]. Of further note is the fact that a number of South African firms have overseas listings on developed market exchanges. It is therefore possible that our sample of South African firms is, on average, better positioned to manage operational risk than truly "local" companies.

"Business as usual" may be possible in the presence of the epidemic if firms deal effectively with local operating conditions

If valid, we believe this hypothesis offers some reassurance for companies operating in areas with increasing HIV/AIDS prevalence. The lack of difference in analysts' expectations suggests that, as long as firms deal effectively with the local operating conditions, it may be possible to do "business as usual" in the presence of HIV/AIDS.

Moreover, economies at a macro level have proved that they can operate in a "business as usual" mode in the presence of HIV/AIDS. As such, there are indications that companies should be able to adapt in the same way. As in any situation and market, the companies that are best placed to take active measures to monitor and control infection rates are also likely to be the most successful. This being said, should HIV/AIDS prevalence start to impact the social fabric of a society, then "business as usual" could be severely impaired for any firm operating there. We believe it could be this risk, rather than short-term financial performance, that may turn out to be one of the main reasons driving companies to deal proactively and comprehensively with the epidemic *in situ*.

The companies that are best placed to monitor and control operational risks are also likely to be the most successful

3.2.2 Valuations: South Africa and the rest of the world

Valuations of South African firms appear to price in higher risk; or, an expectation of lower profitability than developed market firms

After finding no evidence of any significant difference in analysts' fundamental forecasts, this section considers whether a similar pattern applies to valuation forecasts. Exactly the same comparative "pair" process is followed for the three peer groups (South African, developed market and emerging market), employing two commonly used valuation measures: *EV/EBIT* and *PE*.

The results here are quite different. A comparison of South African firms against their developed market peers indicates that, when this analysis was conducted, the valuation of South African firms was unequivocally lower, for all years, irrespective of average or median calculations.

[89] Listing rules present barriers to entry. Without a trading history and reasonably well-developed reporting systems, firms are unable to list on the main board.

Table 15: Valuation Comparison: South African and developed market firms

		Average, South Africa	Average, Non-South Africa	Median, South Africa	Median, Non-South Africa
EV/EBIT (core)	**2004E**	**8.18**	**13.58**	**6.84**	**12.64**
	2005E	6.50	10.45	5.57	10.31
	2006E	6.33	9.86	4.68	9.41
PE	**2004E**	**14.24**	**21.74**	**9.63**	**16.58**
	2005E	9.40	14.19	8.06	13.29
	2006E	9.52	13.27	7.60	12.60

Source: UBS. Data as at August 2004

There appears to be a "South African risk premium" in valuations

Whilst analysts' fundamentals forecasts do not appear to reflect much country-specific "drag" on profitability, the valuations of South African firms in the equity market appear to be below comparable firms in developed markets. There appears to be a "South African risk premium"; in other words the "discount rate" being applied by the market to the cash-flows of South African firms appears to be higher than for developed markets. Alternatively, long-term cash-flows are expected, by the market, to be lower.

The question therefore becomes whether this is just an "emerging market" risk premium, or whether it is more specific to South Africa. To consider this in more detail, Table 16 presents a comparison of valuations for South African firms and their emerging market peers.

Table 16: Valuation Comparison: South African and emerging market firms

		Average, South Africa	Average, Non-South Africa	Median, South Africa	Median, Non-South Africa
EV/EBIT (core)	**2004E**	**6.59**	**6.80**	**6.35**	**6.93**
	2005E	5.49	5.79	5.20	6.85
	2006E	5.17	5.69	4.42	6.67
PE	**2004E**	**9.06**	**9.95**	**9.13**	**9.95**
	2005E	7.59	8.11	7.93	8.87
	2006E	7.46	8.00	7.13	8.00

Source: UBS, data as at August 2004

South African firms appear to trade more cheaply than similar emerging market companies implying either a higher risk premium or lower long-term profitability expectations

Once again, the results show that valuations for South African firms are lower (albeit a narrower valuation gap than with the developed market basket), for all years, irrespective of average or median calculations. Despite the limited difference in fundamentals, South African firms appear to trade more cheaply than similar emerging market firms, thus also implying either a higher discount rate (risk premium), or lower long-term expectations for profitability, or some combination of the two.

Whilst analyst forecast numbers do not appear to be especially pessimistic for South African firms, valuations are less positive

Although this analysis is based on a limited sample of data, it suggests to us that while analyst forecast numbers do not appear to be especially pessimistic for South African firms, valuations are less positive. Markets often move more quickly than companies and analysts in reflecting the impact of change. One possible explanation of this movement is that, amongst other things, the presence of HIV/AIDS could be affecting the valuations of South African firms.

We believe it is not unreasonable to conclude that the equity valuations observed in this data sample reflect a certain degree of country-specific risk. A vast range of factors determines how the markets view this risk, including political stability, governance, poverty and/or development levels. We believe HIV/AIDS prevalence can amplify these factors and contribute to macro-economic growth. There is evidence that, in extreme cases, HIV/AIDS is actually being taken into account in sovereign risk ratings[90]. In our view, the valuation gap between South African and other emerging market firms may, therefore, be in some way attributable to the high prevalence of HIV/AIDS.

The valuation gap between South African and other emerging market firms may be attributable, amongst other things, to the high prevalence of HIV/AIDS

3.2.3 What Other Factors could be Influencing Valuations?

Section 2.1 illustrated how South African firms should, on average, suffer higher all-in wage-costs than comparable international firms in the same industry, and that these should increase as HIV prevalence increases. However, in our view there are several factors that could mask a more visible and pronounced "HIV/AIDS effect" on company fundamentals and valuations:

- HIV/AIDS is still very much a medium-term cost and risk factor for multinational companies. The disease is also a "long-term" problem as a result of its nature. Prevalence rates tend to change progressively over years as more of the population becomes infected and illness can take many years to develop after initial HIV infection. By contrast, the financial markets tend to focus on shorter time horizons.
- Financial markets are influenced by a wide range of factors. It is quite rare for one single issue or piece of news, or a single factor, in isolation, to trigger sudden, identifiable and lasting moves in asset prices[91]. Hence, we think it unlikely that any observed differences in valuation between South African firms and other firms can be explained exclusively in terms of an HIV/AIDS "factor".
- Other trends have had a significant influence on the South African economy – not least the post-apartheid opening-up of the market when corporate profitability took a "serious knock[92]". These impacts are also likely to blur a comparison with South African companies versus their international peers.

[90] See for example 2002 Credit Rating by Standard and Poor's. Press Release of the Bank of Botswana, September 2002. "...the affirmation of the ratings balances fiscal flexibility and a track record of economic and political stability against significant development needs, dependence on the global diamonds market and the mounting marcroeconomic impact of the HIV/AIDS epidemic".

[91] Of course, single events can and do move stock prices in the short run. However, we believe it is never possible to be certain that the "obvious" event is the only thing moving the price, even in extreme situations.

[92] Emerging Consumer Dynamics, Sarah Truen and Michael McLintoch, UBS, June 2003, p. 20

Section 3.2 - Summary

Many factors influence the performance of the financial markets, so isolating any specific factor, including HIV/AIDS, may not always be possible. Still, on the basis of our analysis, there appears to be a valuation difference between a basket of South African firms and a set of developed and emerging market peers that is not wholly explained by an "emerging market" effect or by underlying fundamentals. This indicates that other, South Africa-specific factors are at play, one of which may be an additional HIV/AIDS effect on valuations.

Section 4 – How are Governments Responding?

4.1 Government (In)action can Affect Business

Companies operating in locations with significant HIV prevalence are likely to find that its impact on their business, and the effectiveness of their own actions, are directly affected by the level and quality of the host government's response. This point is emphasized in the 2003-4 global review of the business response to HIV/AIDS by the World Economic Forum (WEF) and UNAIDS, which states that:

Companies may be forced to compensate for government policy shortcomings

"Businesses are more sanguine about being able to cope with HIV/AIDS if they believe their countries are generally well governed[93]*."*

A key concern for companies is that they may be forced to compensate for government policy shortcomings, which can vary amongst countries, because the "do-nothing" alternative may prove costlier. If employees cannot rely on state aid, and their ability to work is impaired through exposure to the epidemic, HIV/AIDS not only imposes real costs, but raises real dilemmas for business about how best to respond. If companies working in an HIV-infected area decide to take their own measures to mitigate the effects of the disease, we believe such efforts are much more likely to succeed where government action, including national education, prevention and treatment initiatives, is strongest. Conversely, if the host government is doing little at the national level to combat the spread of the disease, corporate efforts are likely be costlier and less effective. As such, we believe it is in a company's best interest to press: (i) host governments to implement appropriate public education and treatment policies, so as to boost the effectiveness of corporate efforts; and (ii) international donors and multilateral organisations to support local HIV/AIDS prevention and treatment policies.

We believe it is in a company's best interest to lobby for the implementation of appropriate government policies to boost the effectiveness of corporate efforts

We believe this issue is particularly important in a number of the countries discussed in Section 1, such as Russia, India and China, which provide significant commercial growth opportunities, but also have governments whose HIV/AIDS policies at this stage appear less developed.

[93] Business and HIV/AIDS: Who Me? A Global Review of the Business Response to HIV/AIDS 2003-2004. A survey amongst 7,800 business leaders in 103 nations, commissioned by the World Economic Forum and the Joint United Nation Program on HIV/AIDS.

4.1.1 Factoring HIV/AIDS into Country Risk Assessments

Although global companies typically conduct country risk assessments[94], few such reviews factor in the specific HIV profiles of each region, instead basing their ratings calculations on general life expectancy. Because the impact of HIV/AIDS on life expectancy and productivity is unique[95] we believe such generalised life expectancy measures would fail to capture the full economic impact of the epidemic.

Country risk assessments rarely factor in specific HIV profiles and the impact on life expectancy. As such, the full economic impact of the epidemic can be overlooked

In our view, companies' assessments of country risk should ideally include an evaluation of HIV national prevalence and the extent to which the host government is managing and containing the epidemic. Some of the questions to consider include: Does the incidence and spread of HIV/AIDS figure in the calculus? If so, to what extent? Has the quality of the host government's response been factored into the assessment? If so, how should this impact a corporate response? Such an analysis would be distinct from the broad evaluation of the economic and social profiles of the region, and consider the specificities of local infection rates and epidemiological patterns.

An assessment of country risk should ideally include an evaluation of HIV prevalence and the host government's response

4.1.2 Government Reactions to HIV/AIDS

Throughout the world, the emergence of HIV/AIDS has been associated with secrecy and social stigma, often impeding rapid and effective government response. In the United States, in the early 1980s, the disease was believed to be relevant only to Haitians, homosexual men and drug users, and it was not until the disease started to spread to other social groups that the government and relevant medical authorities recognised it as a nationwide problem. Similarly, in the United Kingdom, where the virus was also initially associated with a homosexual minority, the first instances of the disease were met with general apprehension, with medical practitioners and service providers in some instances refusing to work with homosexual patients or clients. A number of emerging economies seem to be following a similar pattern: as a result, there are indications that the social stigma associated with HIV/AIDS has led to significant under-reporting of infection rates[96].

The emergence of HIV/AIDS has been associated with secrecy and social stigma, often impeding rapid and effective government response

Today, the governments of Brazil and, to a lesser extent, Russia, India and China, are beginning to recognise the impact of the disease and adopt corresponding measures. Brazil has been particularly proactive in this area, and its intervention programmes are discussed in more detail in Section 4.1.3. However, implementing HIV/AIDS prevention and treatment programmes remains problematic in the other three countries, and

Companies should be aware of the more limited scope of government initiatives in countries like Russia, India and China

[94] It is common business practice for companies to conduct a country risk analysis when deciding whether to operate in certain areas, or as a means of keeping up to date with local conditions where they already operate. This analysis may vary depending on the extent to which companies take account of local economic and political factors in assessing growth prospects and country and operational risks. Companies may rely on tools such as the Human Development Index (HDI), to determine how life expectancy, education and literacy levels influence the economic and social profile of a country.

[95] See section 1.1.1

[96] Science, Vol 304, 23 April 2004, 4 June 2004

companies operating in these regions need to remain aware of the currently more limited scope of government initiatives. Faced with small budgets, large territories and diverse populations, health authorities are unable to provide appropriate prevention advice, much less comprehensive treatment, to all those who need it. Consequently, large segments of affected populations are still unable to benefit from existing programmes.

- In **Russia**, legislation requires each administrative region to develop AIDS-related assistance programmes, but does not specify where the funding for these programmes is to come from. As a result, many of these programmes, including those providing free testing and treatment, and financial assistance to families of victims of the epidemic, cannot be carried out due to lack of funds[97]. The quality of state-run programmes therefore depends largely on the economic welfare of each region, and we believe companies planning expansion into a specific area should make themselves aware of the local budget allocations to the treatment of the disease in order the evaluate the potential impacts on disease patterns, local economic activity and their workforce[98].

- In **India**, eligibility for free anti-retroviral treatment has been restricted to infected persons resident in the states noted for highest prevalence[99], those aged below 15, pregnant women, and/or those suffering from fully-developed AIDS[100].

- Whilst the majority of the infected population in **Russia, India** and **China** may receive, in practice, little if any treatment due to limited resources, one social group remains completely excluded from any HIV-related programmes: foreigners residing in these countries, whether tourists or workers, are not entitled to any testing or treatment options offered by the state. Russian and Chinese regulations require immediate deportation of any foreigner infected with the virus. We believe this is a cause for some concern, especially as foreign seasonal workers frequently constitute a substantial percentage of the workforce of many global companies operating in these regions. As they tend to travel without their families, they are at higher risk of infection and onward transmission and, if infected, they may be subject to deportation.

4.1.3 Effective government policy has made a difference

Strong and well implemented government policies can suppress the growth of HIV/AIDS, reducing the risks to firms operating locally

Although the precise economic impact of HIV/AIDS on company performance and valuations is difficult to quantify due to data limitations[101], the picture is clearer at the macroeconomic level. Furthermore, we believe there is evidence that strong and well implemented government policies can

[97] Source: Centre for AIDS Control and Prevention, Russia

[98] RF Law 38-F3, 30.03.1995

[99] See section 1.1.2

[100] India's Many Epidemics, Science, Vol 304, 23rd April 2004, pp 504-509

[101] See sections 2 and 3

suppress the growth of HIV/AIDS infection rates, thereby reducing the risk to firms operating locally.

Examples of such intervention are shown below from specific countries (**UK, Brazil** and **Thailand**), suggesting that firms stand to benefit from positive government action, whether the epidemic is well established or only nascent.

- **UK:** The management of HIV/AIDS in the UK illustrates, we believe, how strong government policy can have a substantial impact on the progression of the epidemic. Five years after the first cases of HIV appeared in the UK, between 1986 and 1993 the government worked to promote awareness of the disease, how it was transmitted and how it could be avoided. Concurrently, new regulation ensured free treatment for all AIDS patients from the National Health Service (NHS). This aggressive policy slowed the growth in infection rates, resulting in a much more favourable scenario for the UK than for some of its European neighbours, where a less pro-active strategy was employed. By example, at the beginning of 1999, the UK had 16,468 cases of HIV/AIDS, compared with 50,112 in France, 43,936 in Italy and 18,479 in Germany[102]. Since the widespread introduction of more effective HIV treatments in 1996, the number of HIV-associated deaths in the UK fell dramatically: in 2003 there were 475 reported AIDS-related deaths, compared with 1,719 in 1995.

- **Brazil:** Brazil's successful management of HIV/AIDS illustrates how emerging market economies can be as effective as the developed world in tackling the disease. Its internationally renowned HIV/AIDS programme provides treatment to approximately 125,000 people, more than any other country in the developing world. The number of deaths from the disease has dropped by 80% in recent years. According to UNAIDS[103], the success of the Brazilian programme is due to investment in prevention campaigns (among young people and prostitutes in particular); public pressure on government; and the financial savings to the public purse from production of generic anti-retroviral drugs.

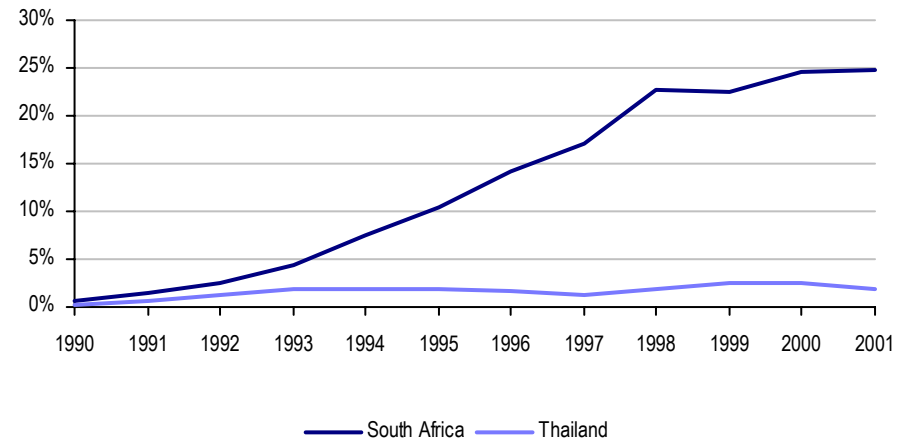
- **Thailand**: In 1990, South Africa and Thailand had a similarly low prevalence rate of less than 1% of their respective populations. However, in Thailand, both government and business were proactive in trying to stop the rapid spread of the disease. The results were impressive: according to UNAIDS, "Thailand's fêted 100% condom-use programme brought its rampant epidemic to heel in the 1990s, with national HIV prevalence hovering around 2% in 2002 and prevalence among 21-year old military conscripts dropping to under 1% in 2002 from….4% in the mid 1990s…[104]"

[102] AIDS the first 20 years, The Observer, June 3rd 2001

[103] UNAIDS 2004 Report on Global AIDS Epidemic, Dec 2004

[104] UNAIDS Epidemic Update, December 2003, Asia and the Pacific

Chart 13: The Impact of Early Intervention HIV Prevalence in Thailand and South Africa, 1990-2000



Source: UNAIDS, CIHD, Boston University School of Public Health

The success of this programme is considered all the more impressive when compared to prevalence statistics in South Africa, illustrated in Chart 13. However, it could be argued that the challenges faced by South Africa were far more severe than those in Thailand, not least its large migrant worker population, which makes nationwide prevention, testing and treatment particularly difficult.

Section 4 – Summary

Companies operating in locations with significant HIV prevalence may be forced to compensate for any potential host government policy shortcomings relating to the disease because the “do-nothing alternative” may prove costlier. This issue is particularly acute in countries like Russia, India and China, which provide significant commercial growth opportunities, but also have governments whose HIV/AIDS policies appear to be relatively limited at this stage and where the disease remains shrouded in secrecy and social stigma. Country risk assessments conducted by companies should ideally include an evaluation of HIV national prevalence and the extent to which the host government is managing and containing the epidemic. Companies should press host governments to implement appropriate public education and treatment policies, so as to boost the effectiveness of corporate efforts.

Section 5 – Assessing the Risks: Company Responses

5.1 What are the Options?

As demonstrated in Section 4, a pro-active government response to HIV/AIDS can play an instrumental role in preventing the spread of the epidemic. However, in countries where such a hands-on response is lacking, companies may find their operations more severely impacted by the spread of the epidemic, and choose to address the disease through their own resources. Below are some of the options we identify as available to companies facing significant or increasing prevalence rates in areas where they operate. The section also includes an illustrative (non-exhaustive) survey of corporate practices, which seeks to provide examples of some of the steps companies may consider adopting in addressing the disease.

5.1.1 Withdrawing from Infected Areas

One option for companies might be to avoid HIV/AIDS by withdrawing from or deciding not to operate in HIV/AIDS-affected areas. Alternatively, firms could choose to diversify into unaffected areas and downplay activity in problem zones. However, for firms that are well entrenched in specific areas, most obviously extractive companies, this may be impractical. Certain industries may, in practical terms, be unable to leave a region or area owing to the nature of their business, or the associated costs of shutting down operations and exiting.

5.1.2 Avoiding the Disease

Theoretically companies could limit their exposure to HIV/AIDS by withdrawing from infected areas or reducing employee headcount

Short of outright withdrawal, companies may be able to minimize the impacts of HIV/AIDS by reducing employee headcount, by capital-for-labour substitution, or by increasing the proportion of temporary employees. Firms may also seek to reduce the proportion of HIV-positive individuals in the workforce by outsourcing to locations with lower infection rates. However, as with withdrawal, these options may not prove practical.

A further option may be the introduction of an HIV/AIDS-screen during company recruitment. However, we believe this is unlikely to be implemented by companies with clear non-discriminatory workplace policies, for fear of breaching them or additional human rights commitments, especially in jurisdictions where this is covered by employment law.

5.1.3 Addressing HIV/AIDS

Steps by the business community to address HIV/AIDS have largely been limited to operations in sub-Saharan Africa

If withdrawal from infected areas or disease avoidance are undesirable or unfeasible options, it would appear to us that companies remaining in HIV-infected areas can either rely on national public health systems or take matters into their own hands. This choice may be more or less influenced by humanitarian concerns, but is likely to be very much conditioned by economic factors. Whilst the business community is increasingly choosing to tackle HIV/AIDS, these steps remain largely limited to operations in sub-Saharan Africa. To date, evidence suggests that multi-nationals have been less pro-active in other infected regions, such as Russia, India and China,

where current national and local government policies appear to be failing to control the spread of the disease.

The following sections illustrate how companies are managing the business impacts of HIV/AIDS. They draw largely on the experiences of companies in Africa, but nevertheless may offer guidance for companies operating elsewhere.

5.2 Evaluating the risks

Whether operating in countries with high levels of HIV/AIDS infection, or planning an expansion/acquisition in such regions, companies should be in a position to evaluate their actual or potential exposure to the epidemic. As such, HIV/AIDS prevalence should be considered as one component in the routine country risk assessments undertaken by companies[105]. Where HIV/AIDS is flagged as a potential risk, companies are using the techniques below to inform their understanding of how the disease can affect their business.

Companies should be in a position to evaluate their actual or potential exposure to the epidemic

5.2.1 Situation Analysis

A crucial first step in determining the risks posed by HIV/AIDS at a particular site is establishing the baseline impacts of the disease, referred to as "situation analysis". This tends to be divided into three main categories: (1) the impacts of the disease on the local workforce; (2) the impacts of intervention programmes; and (3) the impacts of the epidemic on the company.

Surveillance studies:

In evaluating the impacts of the disease on the local workforce, companies such as **BP**, **Daimler Chrysler South Africa (DCSA)** and **Anglo American** have conducted surveillance studies for their Southern African operations. External agencies, such as the Actuarial Society of South Africa (ASSA), have carried out local surveys based on demographic data, to estimate: current levels of infection and the projected rates of growth; principal modes of transmission; and costs to the business (in the case of **BP**). The results of these surveys have been a means for companies to assess their potential exposure to the virus. They have also helped to identify potential intervention options where appropriate, based on an analysis of the costs of the epidemic.

Situation analysis helps to establish the baseline impacts of HIV/AIDS. It can involve surveillance studies of the local area as well as behavioural surveys

"Knowledge, Attitude, Perception and Behaviour" (*KAPB*) surveys:

These surveys aim to evaluate behavioural patterns and establish existing levels of HIV-awareness and safe sexual practices amongst different employee groups. The information can also help in designing, implementing and monitoring appropriate intervention strategies. **DCSA** carried out such a survey amongst a sample of its employees to help it benchmark the effects of intervention. The survey looked at such factors as sexual behavioural patterns, including actual condom use, and knowledge about and attitudes to

[105] See section 4

sexually transmitted infections *(STIs)*, HIV/AIDS and opportunistic diseases such as tuberculosis. The findings were then juxtaposed against information regarding the background, upbringing, gender, race and role in the workplace to identify the employee groups most at risk, and to highlight existing knowledge and behavioural concerns[106].

Estimating the costs of HIV/AIDS to business:

Companies have undertaken such an exercise by estimating the costs of absenteeism, medical and compassionate leave, and increased staff turnover. Although these data are largely internal and not publicly available, some companies have disclosed the results of this exercise. For instance, **Xstrata** has found these costs to add up to 3-6% of the annual wage bill of its South African business[107], while **Goldfields** has found that AIDS-related labour turnover adds US$4-10 to the cost of each ounce of gold it produces[108] .

What are the benefits and costs?

- An awareness of the business risks associated with HIV/AIDS can be evaluated across all areas of operation at an early stage.
- An understanding of the impacts of HIV/AIDS on company operations can inform an appropriate response to the disease.
- Situation analysis is relatively low cost. In 2001, **DCSA**, whose workforce at the time numbered 4,500 employees, budgeted R1,802,000[109] for its programme (including training costs) for the first year, R1,702,000 for the second year, and R1,296,000 for the third year[110].

What are the challenges?

- Applying demographic data to the actual employee base, given the inaccuracies involved in such extrapolation.
- Overcoming the barriers and social stigma associated with HIV/AIDS amongst employees.
- Securing employee participation in Knowledge, Attitude, Perceptions and Behaviour (KAPB) surveys.
- Maintaining anonymity of KAPB surveys.
- Applying internal human resources data to HIV/AIDS analysis.

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[106] http://www.weforum.org/pdf/Initiatives/GHI_HIV_DCSA_AppendixB.pdf

[107] Source: Xstrata company presentation, 2004

[108] Source: Action against AIDS in the Workplace, International Labour Organisation, 2002

[109] In March 2005, US$1 = R5.85

[110] http://www.weforum.org/pdf/Initiatives/GHI_HIV_DCSA_AppendixF.pdf

5.2.2 Prevalence Surveys; Voluntary Counselling and Testing (*VCT*)

Prevalence surveys help companies evaluate infection rates in their own operations

After situation analysis, detailed prevalence surveys based on as many employees as possible, can help companies achieve the following:

- Evaluate actual and projected infection rates across the workforce
- Identify the employee groups most at risk
- Determine the most efficient and effective way to manage HIV/AIDS

Anonymity:

A critical element in conducting a successful prevalence survey is ensuring the full anonymity of all those who volunteered to be tested. Due to the stigma associated with HIV/AIDS, employees have traditionally been hesitant to disclose their HIV-status for fear of discrimination, persecution or dismissal. Companies have addressed this concern by:

- Developing policies that prohibit the discrimination against HIV-positive employees[111]
- Using saliva samples for testing
- Replacing employee names with bar-codes
- Hiring outside consultants to carry out the testing, as done by **Anglo American**

Prevalence surveys:

Due to these precautions to ensure their anonymity, employees who volunteer to be tested, do not learn their HIV status. Instead, companies:

- Use the data from the tests to extrapolate for the rest of the workforce, based on the results of the prevalence survey as well as epidemiological projections for the region. To achieve this, some companies, such as **Lonmin** and **Anglo American**, have worked extensively with the Actuarial Society of South Africa (ASSA).
- Use demographic data and projections to estimate future prevalence scenarios and communicate this information widely round the firm.
- Use the date to provide more accurate information on the employee groups most at risk from infection. Findings from prevalence surveys have indicated that the group most at risk of infection consists of low-skilled workers on a seasonal schedule and separated from their families for long periods.

[111] See section 5.3.1

Voluntary Counselling and Testing (VCT):

Based on the results of the prevalence survey, a number of companies have decided to offer voluntary testing and counselling (VCT) programmes to employees. These programmes work in three ways:

- Provide staff with voluntary opportunities to learn their HIV-status
- Offer counselling support to both the infected individuals and their uninfected dependants
- Educate participants about lifestyle and nutritional choices that could enhance their health[112]

What are the benefits and costs?

- More accurate estimates of the number of HIV-positive employees within a business, and thus the scale of the problem.
- More accurate information on the employee groups most at risk from infection, resulting in more focused and effective intervention programmes to prevent or manage the spread of the disease.
- Early detection of HIV-positive status through testing and counselling is recognised as a key starting point for an effective HIV/AIDS management strategy.
- Relatively low cost of the programmes: **Anglo American** estimates the total cost of testing for HIV, including administrative and processing expenses, at R116 per employee.

What are the challenges?

- Reducing fear and stigma by providing an environment free of discrimination where employees are willing to be tested.
- Ensuring that all prevalence testing is anonymous, and that results of VCT are confidential[113].
- Increasing employee participation in testing programmes, thus providing a more accurate and comprehensive picture of the impacts of the disease. Companies such as **Lonmin** are tackling this problem by working with influential bodies such as local and national trade unions.

5.3 Company Responses

At present, the corporate response to HIV/AIDS varies significantly, and consists of some or all of the following four approaches:

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[112] The importance of VCT is emphasised in the new survey of business responses to the epidemic. One of the key recommendations of the report is the promotion of testing as a key starting place for an effective HIV/AIDS strategy. http://www.weforum.org/pdf/Initiatives/GHI_Report_2005_Final.pdf

[113] Anglo American Health Economics Unit, 2004

- Establishing a set of policies and procedures to address the disease and ensure that employees are informed about programmes available to them.
- Developing programmes to raise education and awareness and prevent HIV infection.
- Delaying the onset of full-blown AIDS through a range of health and nutrition programmes.
- Providing treatment to employees.

Company responses include the development of HIV/AIDS policies, education and awareness programmes, health and nutrition advice and treatment

5.3.1 Dealing with Discrimination

In attempting to undertake risk assessment, companies have reported that fear of discrimination or harassment is often the primary factor preventing employees from learning their HIV-status and taking proactive steps to improve their health. Companies such as **Heineken**, **Anglo American** and **Lonmin**, which operate in regions with a high incidence of infected employees, have attempted to address the fear of discrimination through policies that prohibit the discrimination against potential employment candidates based on HIV-status and also the discrimination against existing HIV-positive employees. These policies are often the result of broad consultation within the company and with external parties (e.g. unions, non-governmental organisations) and as a means of successfully implementing them, companies have made senior managers, including Board members, responsible for them[114].

5.3.2 Prevention, Education and Awareness

Prevention, education and awareness programmes play a key role in helping companies minimise the impact and spread of HIV/AIDS and reduce stigma in the workplace. A number of companies operating in regions with high infection rates have established ways of educating employees and local communities about the virus and its principal modes of transmission, as well as providing free condoms. In some cases, companies also provide testing for sexually transmitted infections, as the resulting lesions may make victims more vulnerable to HIV infection.

- **Standard Chartered**'s "Staying Alive" campaign, initiated in 2000 throughout Africa, focuses on staff education. The programme involved the training of 200 staff "champions" in the key modes of HIV infection and existing prevention methods. These champions were then responsible for rolling out the programme to the rest of the workforce.
- **DCSA** launched a dedicated programme in partnership with a German trade organisation with an explicit focus on education and counselling for all employees.

Additionally, some companies have addressed the risks arising from lack of awareness or knowledge about the disease in the wider community,

[114] This is but one method; we do not propose to look at all approaches invoved in reducing discrimination

recognising that this may lead to an increased risk of infection amongst their own employees.

- **Anglo American** has made a formal commitment to promoting HIV-education and awareness in areas where it operates. It works with government authorities, non-governmental organisations and religious groups to achieve this.
- In India, **TataSteel** operates outreach programmes across rural communities to promote awareness of the disease and available prevention methods. It has trained 1,400 educators who work with high-risk groups, such as prostitutes and drug addicts, to implement responsible behaviour patterns (including through free needle and condom distribution).

As noted above however [115], we believe the success of corporate intervention programmes can be significantly influenced by the host government's response to the disease. A pro-active government prevention and education strategy will likely reduce the burden on companies and, most likely, improve the effectiveness of a corporate programme. As a means of addressing this issue, companies such as **Lonmin** and **Anglo American** in South Africa have been involved in lobbying national government about the need to raise awareness of the risks associated with HIV/AIDS at a national level.

What are the benefits and the costs?

- Evidence, summarised in Table 17 below, suggests that the average cost of prevention programmes is very low: research conducted by the World Economic Forum (WEF) on this issue suggests that corporate prevention budgets average less than 0.5% of local sales.

Table 17: Prevention Budgets as a % of Local Revenue, 2000-2003

Local firm	Industry	Budget % Revenue
South Deep	Mining	0.26%
Gold Fields Limited	Mining	0.19%
Kamaha Mining Corp	Mining	0.16%
Hilanga Cement plc	Construction	0.08%
Anglovaal	Mining	0.07%
Anglogold	Mining	0.04%
Nedcor	Financial Services	0.03%
DaimlerChrysler	Auto	0.02%
Tata Tea	Food and Beverage	0.01%
Nike	Retail & Consumer	0.00%

Source: Selected WEF Case Studies

[115] See section 4

- Greater awareness of the disease and heightened understanding of how it can spread, reduces the chance of infection, minimising the risk to business operations.
- We believe robust prevention programmes play an important role in minimising infection and preventing future costs to a company. In a study of the impact of HIV/AIDS on business discussed in Section 2, Sydney Rosen and her colleagues estimated that while prevention costs between $10 and $15 per employee annually, it can reduce HIV infection rate by as much as 50%[116].

What are the challenges?

- We believe the success of corporate prevention programmes is influenced by the local context. A lower level of attention to the HIV/AIDS problem by the host country government may hamper the effectiveness of specific company efforts.
- The logistical and administrative burden of organising and maintaining robust programmes needs to be accounted for.
- Employees should be encouraged to participate in prevention and education efforts, integrating them into day-to-day business operations.
- In our view, a company needs to decide whether to operate prevention programmes exclusively amongst employees, or extend these to dependants and local communities.
- The programme administrators need to co-ordinate knowledge and experience between different business operations and locations, and keep headquarters abreast of developments.

5.3.3 Wellness Programmes

Once HIV infection has taken place, eight to 11 years usually pass before the onset of full-blown AIDS [117]. Timely intervention and aggressive treatment of the opportunistic illnesses that affect the HIV-positive individuals may delay the onset of AIDS. Companies have therefore developed dedicated wellness programmes, designed to prolong the health of HIV-positive workers for as long as possible. By monitoring employee health and ensuring timely treatment of infections, as well as providing nutritional support and counselling, companies seek to increase the welfare and contribution of infected employees, who may otherwise be disabled by the virus and the accompanying infections.

[116] Sydney Rosen et al, AIDS Is Your Business.

[117] AIDS is usually defined either when a person's CD4+ cell count falls below a certain level or when they become extremely vulnerable to opportunistic infections such as tuberculosis, Kaposi's sarcoma, or pneumocystic pneumonia. In addition, patients with the virus can become so weakened by ordinary diseases, including STIs, that the immune system can no longer resist the onset of AIDS.

Unilever and **Anglo American** are particularly notable in this regard, as their South African programmes offer employees comprehensive psychological and medical support, including treatment of opportunistic infections that are associated with the onset of HIV/AIDS[118]. The two companies have developed broadly similar programmes, which consist of the following:

- Regular monitoring of the CD4 counts of infected employees, to assess the progress of the virus towards the onset of AIDS.
- Regular health examinations to identify opportunistic infections.
- Treatment of opportunistic and sexually transmitted infections before they overwhelm the immune systems and trigger the onset of AIDS.
- Nutritional and psychological counselling, and support to infected employees and their families.

The cost of wellness programmes varies widely, and depends on the extent and range of services provided. For instance, **Anglo American** has estimated the cost of its wellness programme at R3,320 per employee per annum[119].

5.3.4 Treatment

A number of South African companies have decided to provide treatment to employees. Most of these companies provide Highly Active Anti-Retroviral Therapy *(HAART,* also referred to as *ART,* Anti-Retroviral Therapy*)*. HAART usually consists of a combination of three of the 17 drugs currently approved for use. Patients receiving HAART are required to take the three drugs on a daily basis, as the virus can otherwise become resistant to the effects of the medication. These drugs are usually administered in large doses with patients sometimes taking up to 60 pills per day, at varying intervals. Many patients also experience unpleasant side effects, such as nausea, fatigue and severe abdominal pain.

Provision of treatment to employees can be a costly exercise, with annual medication packages ranging between US$500 and US$900 per employee.[120] Some companies, such as **Unilever**, have therefore chosen to collaborate with local medical services to facilitate access to, and reduce the cost of treatment, by sharing the logistical and administrative burden. Similarly, **DCSA** has worked with a third-party health plan administrator, Medscheme, to provide targeted treatment programmes to employees infected with HIV. Medscheme operates “Aid for AIDS” a comprehensive treatment programme that allows companies in South Africa to outsource disease management, and gives infected employees access to testing, counselling and treatment.

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[118] Global Business Coalition on HIV/AIDS: www.businessfightsaids.org

[119] Anglo American Health Economics Unit, 2004

[120] Sydney Rosen and Anglo American

In other cases, companies provide anti-retroviral treatment to employees free of charge. As a further means of reducing medication costs, firms have reached bulk purchase agreements with pharmaceutical companies, as **Anglo American** and **Lonmin** have done with **GSK** and **Merck,** which enables them to provide treatment to employees directly.

At the moment, most firms limit the provision of their treatment to their South African operations, where prevalence rates are the highest[121].

What are the benefits and the costs?

Many companies report tangible benefits arising from the provision of HAART to infected employees, citing increased employee productivity, decreased staff turnover and improved morale. However, costs associated with the programme remain considerable, as companies face the burden of added resources, medication costs and logistical and administrative overheads. Given the complexity of these factors, a detailed costs/benefits analysis remains difficult. **Anglo American** is currently carrying out a full costs/benefits analysis of its treatment programme, but it estimates that it will need another five years to gather all necessary data. The examples below are therefore anecdotal, but nevertheless illustrate key issues associated with treatment provision.

- A reduction in hospitalisation due to infections and AIDS-related disability: **Compagnie Ivorienne d'Electricité** (**CIE**) (3,500 employees) reported savings of $129,525 net of treatment costs in the first year it introduced HAART, as hospitalisation costs went down from $180,937 to $50,873[122].
- **Xstrata** has estimated that providing treatment to an employee with AIDS can extend his/her working life by as much as seven years, with the resulting net costs savings of R97,000 NPV for a R6,800/month employee[123].
- **Anglo American,** which has been offering treatment to AIDS-infected employees since 2002, reports that 94% of employees taking medications are capable of a normal working life[124].
- Sydney Rosen [125] has carried out a survey of six South African companies that have chosen to provide treatment to infected employees. Based on her findings, she estimates that a one-year extension of an infected employee's life expectancy through treatment reduces net costs

[121] Some companies have chosen to extend their treatment programmes to contractors, as in the case of Lonmin, or to employees' dependants, as done by Standard Chartered and Unilever. This has been identified as reducing absenteeism amongst workers caring for infected family members and encouraging VCT uptake with employees knowing the same benefits apply to family. At present this practice is not widespread.

[122] CIE presentation

[123] Xstrata presentation

[124] Anglo American website

[125] See section 2.1 for a detailed discussion of Rosen's work and reference information

per employee by 8%, a three-year extension by 25% and a five-year extension by 38%.

- Increasingly, companies are negotiating bulk-rate drug prices to force down ART costs, although the savings derived from such agreements remain confidential.

What are the challenges?

- Deciding whether to provide treatment when the associated costs and benefits are unlikely to be known before a programme starts and external data remain extremely limited.
- Choosing whether it makes sense to limit treatment to employees or extend it to dependents (and how this term should be defined and applied), and/or contractors.
- Deciding whether to take provide treatment in-house, or collaborate with local medical services/health plan administrators.
- Establishing partnerships with pharmaceutical companies and other businesses in the region to provide medication at cost-efficient prices and to encourage economies of scale.
- Operating in areas where national health infrastructures are relatively weak and offer very limited support to corporate programmes.
- Identifying the disease early in order to give treatment the best chance of success, and ensuring that the associated outlays are well spent. If the disease is at an advanced stage before treatment begins, companies report that it is less effective.
- Ensuring appropriate employee uptake of treatment programmes, given the severe and sometimes disabling side effects. It is also important to ensure that employees take medication in the prescribed manner and continue to take it to reduce the risk of developing resistance. HAART can have strong side effects, and some employees may therefore choose to stop taking the treatment. Instances have also been reported of employees sharing their treatment with infected family members. **Lonmin** found that of the 300 employees who entered the treatment programme in 2004, 9% have discontinued their treatment because of the extensive side effects, while 2% had treatment stopped as the virus had been detected too late for treatment to be effective[126].

5.4 Monitoring the Risks

To remain effective, corporate intervention strategies need to be monitored and continually re-evaluated.

[126] Lonmin CSR Report 2004

5.4.1 Programme Monitoring and Evaluation

Monitoring the impact of the epidemic on the workplace should allow companies to correctly identify the changes that need to be made to existing HIV/AIDS policies and programmes. A periodic re-evaluation of the effects of the existing programmes may help management to measure the effects of the programme, and determine necessary re-sourcing allocation. **Unilever** and **Lonmin** have developed robust strategies addressing this need. Both companies have employed external agencies continually to gather data regarding the performance of HIV/AIDS programmes, and both carry out periodic prevalence tests to identify changes in epidemiological patterns.

One of the challenges we identify with monitoring is the identification and selection of measurable performance indicators that are optimally suited to the business model, location, and exposure to HIV/AIDS risk. Possibilities include attendance at STI clinics, absenteeism and deaths in service. Larger business may also be able to evaluate changes in HIV/AIDS prevalence, employee attitudes and acceptance of HIV-positive employees by their peers.

What are the benefits?

- In our view, a company is better positioned to manage the risks associated with the disease if it is kept up-to-date with how its business is being affected.
- If programmes are monitored, they can be to be altered if appropriate, thus making them more relevant and cost-effective.
- Continuous monitoring and evaluation facilitates internal planning and resource allocation to combating the disease.

What are the challenges?

- Relevant indicators have to be determined so that they can be monitored.
- Decisions have to be made about how frequently programmes should be monitored to provide the maximum information with the least cost and disruption to the business.
- Sufficient and relevant data has to be collated and processed.
- Results have to be fed back into the relevant intervention programmes.
- The logistical and administrative costs associated with monitoring have to be met.

5.4.2 Reporting

We believe an important issue to consider when monitoring HIV/AIDS intervention programmes is how to communicate the results across the company. On its own, any ongoing evaluation relating to the impact of the disease on operations and/or the efficacy of related programmes, helps local managers operate the business. Properly communicated, the conclusions and recommendations from one site may prevent other operations in the

company from duplicating efforts or investing resources into inefficient strategies.

Some companies, such as **Anglo American**, **Daimler Chrysler** and **Standard Chartered** have taken a further step by communicating the progress made in their HIV/AIDS programmes to their shareholders and broader stakeholders. We believe such disclosure should help companies respond to the increasing regulatory pressure to introduce mandatory disclosure of their key operational and financial risks[127]. In addition, we would point out that transparent reporting on the steps taken to address the HIV/AIDS epidemic and their consequences should help re-assure investors and other interested stakeholders as to the effectiveness of internal risk management systems, particularly in operations in high prevalence areas.

5.4.3 Keeping Informed

Companies can also draw on a number of other resources and reference points that have become increasingly sophisticated in recent years. A variety of guidelines and initiatives have been developed by international organisations such as the International Labour Organisation (ILO) and the United Nations (largely through UNAIDS). These include codes of conduct, encouraging companies to incorporate HIV/AIDS management into all corporate systems, and cooperative programmes designed to promote state-business partnerships. A short summary of key initiatives is provided in Appendix 4.

[127] Of particular note in this regard is the Operations and Financial Review (OFR) launched by the UK Department of Trade and Industry

Section 5 – Summary

Setting the Scene: Situation Analysis

- Establishing HIV/AIDS as an integral part of country risk assessment for new business opportunities, as well as for existing operations.
- Carrying out a surveillance survey based on demographic and epidemiological data available in the region.
- Developing and carrying out a Knowledge, Attitude, Perception and Behaviour (KAPB) survey to help understand the actual infection development and associated behavioural patterns.
- Evaluating baseline impacts of the HIV/AIDS epidemic to the business, such as those based on human resources data.

Evaluating HIV/AIDS: Testing

- Understanding the operating context by referencing existing demographic HIV prevalence rates.
- Conducting anonymous employee testing to determine workplace prevalence rates.
- Offering voluntary and confidential testing and counselling (VCT) to employees.
- Working with influential organisations, such as local or national trade unions, to promote uptake of VCT programmes.

Addressing HIV/AIDS: Awareness and Education

- Engaging host governments to encourage a national response to HIV/AIDS, thus reducing the burden on business and ensuring a more effective outcome.
- Developing education and prevention programmes for staff; explaining the basics of transmission.
- Instituting culturally appropriate campaigns for behavioural change, such as providing condoms to employees and local communities.
- Collaborating with agents of influence, such as local government, trade unions and non-governmental organisations, to implement prevention efforts.

Combating HIV/AIDS: Treatment

- Offering free treatment to AIDS-infected employees.
- Outsourcing disease management to healthcare providers to reduce the administrative and logistical burden.
- Developing partnerships with pharmaceutical companies to ensure a cost-effective treatment programme.

Continuous Progress: Monitoring and Communicating

- Identifying measurable indicators to monitor the efficacy of HIV/AIDS programmes.
- Implementing regular monitoring of the impact of HIV/AIDS programmes on employees' health.
- Carrying out periodic prevalence surveys to identify changes in epidemiological patterns.
- Communicating the conclusions and recommendations from existing programmes to other parts of the business.
- Reporting on progress and risk-management to shareholders and other stakeholders.
- Keeping abreast of increasingly sophisticated resources and reference points relating to HIV/AIDS and business.

Section 6 – Conclusion and Recommendations

HIV/AIDS is already being acknowledged as potentially one of the 21st century's greatest humanitarian crises. Its economic impact has yet to be fully understood, and only hindsight will reveal whether it joins the ranks of major economic shocks as well. This study focuses on how rising prevalence rates in pivotal parts of the world pose a real threat to sustained economic growth and the performance of the financial markets. Indications are that it is too early, from an epidemiological point of view, to say whether HIV/AIDS will become generalised beyond Sub-Saharan Africa. However, in our opinion it poses a risk that the business community cannot afford to ignore. Evidence indicates that the disease can increase costs, damage profit margins and decrease consumption. Yet, there is still limited public information on the quantative impacts of HIV/AIDS on company performance. Data remain largely *ad-hoc* and the limited data that are available appear to be confined to a small group of usually large, companies operating in South Africa, where prevalence is particularly high[128], and where firms are already encountering the day-to-day impacts of HIV/AIDS.

For many companies, the disease may prove to have a negligible impact on operations, profits and valuations. Yet companies, shareholders and the broader financial markets are rarely afforded the luxury of reaching such conclusions today. We believe any company operating in, or looking to expand into, areas of HIV prevalence (particularly where it may be forced to compensate for government policy shortcomings) should, at a minimum, be able to demonstrate that it has considered and evaluated the possible effects of the disease on its operations. Where necessary, appropriate intervention programmes should be assessed and implemented in order to manage HIV/AIDS in the most effective and efficient way.

Recommendations

As the disease spreads (and assuming public health systems fail to check its growth completely), the economics of prevention and treatment exemplified in South Africa increasingly argue in favour of business self-help over reliance on public health authorities. Moreover, we believe there is scope for the high cost of the South African experience, both in human and financial terms, to be largely avoided in the rapidly industrialising countries where HIV/AIDS looks set to take hold, provided prompt action is taken. In particular, we believe companies should:

Conduct risk assessment:

- **Include an evaluation of both HIV/AIDS national prevalence and host government response, in country risk assessments for new and existing investments.**

[128] See for example the UNAIDS 2004 Update for prevalence levels by country and region.

- **Determine actual and potential staff exposure to HIV/AIDS through situation analysis, prevalence surveys and voluntary counselling and testing (VCT).**

Evaluate options:

- **Collect data to evaluate the costs and benefits associated with intervention programmes and to decide on appropriate strategies.**

Act:

- **Implement, where relevant, prevention, education, awareness, wellness and treatment programmes to manage the disease and mitigate its impacts.**

Communicate:

- **Publish company-wide non-discriminatory policies relating to employees' HIV status and ensure senior management accountability for such policies. This should serve to reduce the secrecy and stigma surrounding the disease, and enhance the effectiveness of a company's programmes.**

- **Report publicly to shareholders and stakeholders on how HIV/AIDS is being managed through the company.**

Monitor:

- **Re-evaluate the impacts of the epidemic through periodic monitoring, and adjust strategy as necessary.**

Lobby:

- **Press host governments to implement appropriate education and treatment policies, so as to boost the effectiveness of corporate efforts.**

- **Press international donors and multilateral organisations to support local HIV/AIDS prevention and treatment policies.**

Appendices

Appendix 1 (Section 1.1.3):

Examples of Multinational involvement in BRIC Countries

Technology sector:

- **Dell**: "Dell shipment growth in China was nearly 60 per cent last year, four times that of the rest of the industry. The country already is our fourth-largest national market [129] ". **Dell** manufactures its computer systems in six locations: Austin, Texas, and Nashville, Tenn., United States; Eldorado do Sul, Brazil; Limerick, Ireland; Penang, Malaysia; and Xiamen, China[130].

- **IBM:** China, India, Russia and Brazil are named as "emerging growth areas[131]" in its 2003 annual report.

Consumer products sector:

- **P&G:** We estimate China, India and Russia are respectively 4%, 1% and 2-3% of sales.[132] China "is now **P&G**'s sixth biggest market – up from tenth just three years ago[133]".

- **Colgate Palmolive:** India, China, Russia and Brazil amount to a modest 1-2% of total sales, yet **Colgate's** annual report refers to a 31.7% share of the China market, and to strong volume gains in Russia[134].

Pharmaceutical sector:

- China accounts for 1.3% of sales for **AstraZeneca**, but the firm comments in its 2003 annual report that "China, which delivered 20% pharmaceutical market growth in 2003, Korea, Mexico and India are increasing in importance for the future[135]".

[129] See www.dell.com, Annual Reports, 2004 Year in Review

[130] Dell, Annual Report 2004, p. 23. www.dell.com

[131] See www.ibm.com/investor/financials/annualreport.phtml, p. 7

[132] UBS estimates

[133] www.pg.com/annualreports/2003/pdf/PG2003AnnualReport.pdf

[134] http://investor.colgate.com/downloads/2003Annual.pdf

[135] www.astrazeneca.com. Section entitled "investors", for annual reports.

Appendix 2 (Section 1.1.3):

Recent Acquisition Activity in BRIC countries (Source: Bloomberg)

Date	Target	Nature of Target business	Acquiror	Acquiror Country
RUSSIA TARGETS				
1/16/04	Alpha Cemement JSC	Cement	Holcim Ltd	Switzerland
1/23/04	United Financial Group	Financial	Deutsche Bank	Germany
1/3/04	Petroalliance services	Oilfield Services	Schlumberger	US
4/22/04	Volgageoresource	Energy resources	Geotec Thermal Generators	US
4/5/04	Aim High Limited	Battery Marketing & distrib.	GP Batteries International Ltd	Hong Kong
5/5/04	Stklovolokno	Glass yarn mfr	Saint-Gobain Vetrotex Intl	France
6/17/04	Ametistovoye	Copper/Gold mining	Peter Hambro Mining	UK
6/21/04	Zao Polygraph Centre	Folding carton plant	Mayr-Melnhof	Germany
6/23/04	3SYM	Mobile game development	Reaxion Corp	US
7/7/04	Sibinterneft	Oil and Gas	Imperial Energy Corporation	UK
7/27/04	Russian Standard	Consumer credit	BNP Paribas	France
8/10/04	Central European Brewing Co	Brewing	Heineken	Netherlands
9/30/04	Lukoil	Oil and Gas	ConocoPhillips	US
9/11/04	DeltaBank	Consumer Bank	General Electric	US
10/28/04	Avtoframos OAO	Auto production	Renault	France
11/4/04	Balkanskaya Zvezda	Tobacco	Altadis	Spain
CHINA TARGETS				
1/16/04	Western Xuzhou Co-generatior	Cogeneration Power Plants	Continental Mariner	Hong Kong
11/2/04	Shanghai Guo Wei Technology	PC Retailer	The Hartcourt Cos Inc	US
2/17/04	Lucky Film	Film manufacturer	Eastman Kodak	US
2/18/04	RAB projects Ltd	Gold Mining	Apollo Gold Mining	Australia
5/3/04	Guangzhou Montelli Material T	Work Top Surfaces	Du Pont	US
3/18/04	Wangao	Develop & mfr automatic pov	Schneider Electric	SA
3/31/04	Shaanxi Sunshine Cargo Servi	Integrated logistics services	Stonepath Group Inc	US
3/31/04	Ningbo Baowang Battery Corp	Batteries	Rayovac Corp	US
8/4/04	Shanghai Pudon Insurance	Insurance Broker	Willis Group Holdings	UK
9/6/04	Baidu.com	Search and online advertisin	Google Inc	US
6/16/04	Fujian Effort Advertising Co	Advertising	WPP Group	UK
6/29/04	Bexcel	Management Consultancy	Cap Gemini	France
7/14/04	World Wide Web Integrated Ne	Digital marketing	Aegis Group	UK
7/26/04	United Research China	Pharma & Health consulting	IMS Health	US
7/29/04	Beijing International Switching	Mfr communications equipm	Siemens	Germany
7/29/04	Nokia CITIC Digital Technology	Cable & set top box	Thomson	France
9/28/04	Wusu Brewery Co	Brewing	Carlsberg	Denmark
9/30/04	Joyo.com Ltd	Online retail	Amazon.com	US
11/19/04	Bohai Bank	Banking	Standard Chartered Plc	UK
INDIA TARGETS				
1/12/04	Xius India	Software solutions	Megasoft	US
2/23/04	Dynamix Dairy	Dairy products	Schreiber Foods	US
2/24/04	EDS Pvt Ltd	Technology Services	Cbay Systems	US
2/29/04	Ygyan Consulting	SAP services provider	Cognizant Technology	US
4/1/04	Cyberbazaar India	Conferencing Services	Webex Communications	US
4/12/04	E-Serve International	Transaction processing	Citigroup	US
6/22/04	Business Standard	Media	Pearson Plc	UK
8/3/04	Baazee.com India	Online Marketplace	E-Bay	US
9/5/04	Exl Service	Business Process Outsourcii	Aviva Plc	UK
9/22/04	PeopleOne Consutling	Staffing agency	Adecco	Switzerland
11/8/04	Blue Dart	Courier and air package dist	Deutsche Post	Germany
BRAZIL TARGETS				
1/12/04	Ampari Gold Project	Mining & Mineral	Wheaton River Mineral	Canada
3/15/04	Manuseio de Graneis	Mining & Construction	Sandvik	Sweden
4/2/04	Laboratorios Klinger	Generic pharmaceuticals	Glenmark	India
7/14/04	Corporage SA	Software Services Recruitme	Newage Software	US
10/5/04	TSP Telecomunicacoes	Electronics Mfg Services	Flextronics Intl	Singapore
7/14/04	Corporage SA	Software Services Recruitme	Newage Software	US
12/3/04	Yavox Latin America	Cellular Service Solutions	Intel	US
7/14/04	Corporage SA	Software Services Recruitme	Newage Software	US
12/21/04	Maxi Armazenagens	Record & Information Manag	Iron Mountain Inc	US

Appendix 3 (Section 2.2.3):

Explanation of Discounted Cash Flow Analysis (DCF)

Common practice in equity analysis is to use discounted cash flow (DCF) techniques to value firms. DCF estimates the relevant future cash flows of a business and discounts them back to provide a present day value. Refer to the DCF model shown on the UBS Accounting and Valuation website [www.ubs.com/accounting]. The Net Present Value (NPV) of the firm (or business, or project) is calculated by applying the appropriate discount rate to estimated future cash flows.

Value = [CF1 / (1 + WACC)1] + [CF2 / (1 + WACC)2] + …. + [CFn / (1 + WACC)n]

Where: CF = cash flow in a particular period, WACC = weighted average cost of capital (discount rate), n = a finite period or infinity

Advantages and Disadvantages of DCF

Advantages of DCF	Disadvantages of DCF
Theoretically correct	Accurate forecasts are required (this includes forecasts of capital spend on assets, investments or acquisitions)
Forces the analyst to be rigorous in modelling future cash flows	Care needs to be taken in identifying claims on the business other than debt and equity, such as pensions, stock options etc.
Explicitly takes account of the value impact of future profile of cash flows	Requires accurate estimate of the (after-tax) cost of capital
	Easily abused by unscrupulous users
	Often seen as inaccessible by anyone other than the valuer
	Often a large percentage (can be over 80%) of the value lies beyond the explicit forecast period and this value is calculated using terminal value techniques, these techniques are at best approximate and at worst totally inappropriate.

Source: UBS, Global Valuation and Accounting Website

Appendix 4 (Section 5.4.3):

Summary of Key Initiatives Relating to Business and HIV/AIDS

ILO Code of Practice on HIV/AIDS and the World of Work (www.ilo.org)

The International Labour Organization (ILO) is the UN specialized agency working for social justice, and internationally recognised human and labour rights. It has a unique tripartite structure with workers and employers participating as equal partners with governments. In 2001, the ILO launched its code of practice on HIV/AIDS, which encourages companies to consider ten key principles in establishing internal policies and management systems, including:

- Recognising HIV/AIDS as a workplace issue;
- Encouraging employees, businesses and governments to work together to promote prevention of the disease;
- Ensuring that there is no discrimination against any employee based on HIV status;
- Treating all information relating to an employee's HIV status as confidential;
- Permitting infected employees to continue to work as long as they are able.

The code of practice is available on the ILO website and is complemented by a detailed training manual (available in 3 languages) for implementing the principles in the workplace.

Global Reporting Initiative – HIV/AIDS Resource Document (http://www.globalreporting.org/guidelines/HIV/hivaids.asp)

The Global Reporting Initiative (GRI) encourages companies to enhance their disclosure of non-traditional financial performance indicators. It incorporates the active participation of representatives from business, accountancy, investment, human rights, labour and research organisations from around the world. It recently produced sixteen core indicators for companies to use voluntarily when reporting on how they are managing HIV/AIDS. These indicators include questions about governance, measurement, monitoring, quality of policies and programmes, and the extent of disease-related disclosure. The guidelines allow companies to assess the integrity and efficacy of their internal HIV/AIDS management systems within a consistent reporting framework. Investors should be able to use GRI to compare how different companies are managing the effects of the disease.

Global Business Coalition on HIV/AIDS (GBC) (http://www.businessfightsaids.org)

One of the best-known business partnerships is the GBC, which seeks to share good practice among companies on how they are tackling the disease. The business network currently comprises more than 130 international businesses, and works with governments and local communities to combat the disease through combining expertise and resources. The GBC website provides companies with an interactive resource for managing HIV/AIDS in the workplace, by highlighting numerous workplace programmes from around the world. It also details extensive additional resources and potential partners for companies to work with.

Global Health Initiative of the World Economic Forum (GHI) (http://www.weforum.org/globalhealth)

The Global Health Initiative strives to address key health threats, with a primary focus on malaria, tuberculosis and HIV/AIDS. GHI has a similar membership to the GBC, and the two organisations work together on some of their initiatives.

Cross-sector Business Initiatives

A range of business and cross-sector coalitions has recently been established with the express goal of combating the spread and impact of HIV/AIDS. Some of these constitute agreements between a specific set of companies to achieve goals relating to HIV/AIDS management. For instance, India's **Tata Steel** has entered into a co-investment partnership with **Anglo American**, **Chevron Texaco**, **DaimlerChrysler**, **Eskom**, **Heineken** and **Lafarge** to pool expertise and funding in order to improve facilities, such as hospitals and testing centres, in Africa and India[136].

Local Programmes

While South Africa has a considerable number of established local programmes to address HIV/AIDS, other countries with rising HIV prevalence are slowly starting to follow suit.

South Africa: The South African Business Coalition for HIV/AIDS (SABCOHA), of which most companies operating in the region are members, seeks to disseminate knowledge about HIV infection, existing prevention methods, as well as options available to companies facing a large exposure to infection. The coalition also lobbies actively with regional and national government, and promotes responsible behaviour practices and employment policies among the business community. (www.sabcoha.co.za)

Brazil: The National Corporate Counsel on HIV/AIDS: In Brazil, this business coalition reports to the country's Ministry of Health and focuses on the implementation of HIV/AIDS prevention programmes across all Brazilian companies[137].

[136] See http://www.businessfightsaids.org

[137] See http://www.businessfightsaids.org

Russia: Transatlantic Partners against AIDS: In Russia, one of the most active HIV/AIDS-related coalitions remains Transatlantic Partners against AIDS, a partnership of businesses, NGOs, and academics from the United States and Russia. This organisation aims to bring HIV/AIDS to the fore of the political agenda of Russian leaders, and also to raise awareness of the risks associated with the disease among local businesses[138].

India: Indian Business Trust for HIV/AIDS (IBT): Indian companies have been increasingly active in this area, and in 2001 formed IBT. Member firms follow a HIV/AIDS workplace policy, and forge partnerships with local and central trade unions, and medical organisations, as well as promoting de-stigmatisation in the community. Since its creation, IBT has also undertaken extensive work on promoting testing among local communities, as this plays an important role in ensuring that adequate measures to combat the disease are taken by medical practitioners and government agencies. The best practices of 30 businesses have been documented and more than 1700 companies have been covered for workplace interventions[139].

China: In China, the stigma associated with HIV/AIDS has hindered the development of active business coalitions. However, this may change as the government-led China Comprehensive AIDS Response (China CARES) programme, launched in 2003, continues its work on promoting awareness and de-stigmatisation. More recently in March 2004, the Ministry of Health announced plans to set up a national database to record prevalence levels[140].

[138] See http://www.businessfightsaids.org

[139] See http://www.businessfightsaids.org

[140] See http://www.businessfightsaids.org

Glossary and Acronyms[141]

Epidemiological:

HIV/AIDS: Human Immunodeficiency Virus, which causes Acquired Immunodeficiency Syndrome

HIV incidence: the number of new cases of HIV in the population during a certain time period

HIV prevalence: the proportion of the population infected with HIV at a given point in time

Adult prevalence rates: defined as the number of 15-49 year olds infected with HIV.

HIV sentinel sites: periodic surveys undertaken among specific population groups to determine levels of HIV infection rates

High-risk groups: sections of the population considered to be most at risk from HIV/AIDS, including those associated with drug use, prostitution and homosexuality (as below)

IDUs: injecting drug users; **CSWs**: commercial sex workers; **MSM:** men who have sex with men

STIs: Sexually transmitted infections

Intervention programmes: steps taken to limit or manage HIV/AIDS infection, largely focusing on prevention or treatment of the disease

KAPB studies: Knowledge, Attitude, Perception and Behaviour studies

VCT: Voluntary Counselling and Testing

ART/HAART: the existing treatment for HIV/AIDS, known as Anti-Retroviral Therapy or Highly Active Anti-Retroviral Therapy

Financial:

"BRIC" economies: a group of countries consisting of **B**razil, **R**ussia, **I**ndia and **C**hina, which are widely forecast to be major contributors to future world economic growth

PCE: Per capita expenditure

SG&A: Selling, General and Administrative costs

[141] Sources: UBS, F&C, and selected sources named within the main body of the document.

EV: Enterprise Value: the sum of the market value of all claims on a business. EV equals market capitalisation plus seasonally adjusted net debt, pension provisions, the value of minorities and any other provisions deemed to be debt-like in nature.

EV/EBIT: Enterprise Value/Earnings before Interest and Taxation

PE: Price/Earnings ratio

ROE: Return on Equity (Dupont decomposition): Profit margin * turnover * leverage * tax effect

ROIC: Return on Invested Capital: Profit margin * turnover

DCF: Discounted Cash Flow analysis: estimates the relevant future cash flows of a firm (or a business), and discounts them back to provide a present day value. The output of a DCF analysis is an NPV.

NPV: Net Present Value: calculated by applying an appropriate discount rate to the sum of estimated future cash flows

WACC: Weighted Average Cost of Capital: the cost of capital for a firm (or a business), calculated as the weighted average of the costs of a firm's debt and equity

ASSA: the Actuarial Society of South Africa. ASSA has developed a model, the "AIDS Model", with the aim of assisting the actuarial profession and society in assessing and addressing the impact of the AIDS epidemic in South Africa. See www.assa.org.za

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■ Statement of Risk

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UBS rating	Definition	UBS rating	Definition	Rating category	Coverage[1]	IB services[2]
Buy 1	FSR is > 10% above the MRA, higher degree of predictability	**Buy 2**	FSR is > 10% above the MRA, lower degree of predictability	**Buy**	37%	30%
Neutral 1	FSR is between -10% and 10% of the MRA, higher degree of predictability	**Neutral 2**	FSR is between -10% and 10% of the MRA, lower degree of predictability	**Hold/Neutral**	52%	32%
Reduce 1	FSR is > 10% below the MRA, higher degree of predictability	**Reduce 2**	FSR is > 10% below the MRA, lower degree of predictability	**Sell**	11%	25%

1: Percentage of companies under coverage globally within this rating category.
2: Percentage of companies within this rating category for which investment banking (IB) services were provided within the past 12 months.

Source: UBS; as of 31 March 2005.

KEY DEFINITIONS

Forecast Stock Return (FSR) is defined as expected percentage price appreciation plus gross dividend yield over the next 12 months.
Market Return Assumption (MRA) is defined as the one-year local market interest rate plus 5% (an approximation of the equity risk premium).
Predictability Level The predictability level indicates an analyst's conviction in the FSR. A predictability level of '1' means that the analyst's estimate of FSR is in the middle of a narrower, or smaller, range of possibilities. A predictability level of '2' means that the analyst's estimate of FSR is in the middle of a broader, or larger, range of possibilities.
Under Review (UR) Stocks may be flagged as UR by the analyst, indicating that the stock's price target and/or rating are subject to possible change in the near term, usually in response to an event that may affect the investment case or valuation.
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US Closed-End Fund ratings and definitions are: Buy: Higher stability of principal and higher stability of dividends; Neutral: Potential loss of principal, stability of dividend; Reduce: High potential for loss of principal and dividend risk.
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Companies mentioned

Company Name	Reuters	Rating	Price	Price date/time
Anglo American ZA[2a,4a,16]	AGLJ.J	Neutral 2 (RRD)	RCnt13,862	11 May 2005 08:19 BST
AngloGold Ashanti[3a,4a,6a,14,16]	ANGJ.J	Neutral 2 (RRD)	RCnt19,650	11 May 2005 08:21 BST
AstraZeneca[2b,16]	AZN.L	Neutral 1	2,297p	11 May 2005 21:10 BST
AVI Group	AVIJ.J	Buy 2	RCnt1,288	11 May 2005 08:16 BST
BMW[2a,4a,16]	BMWG.F	Buy 2	€33.55	11 May 2005 21:10 BST
BP[2a,4a,5,14,16]	BP.L	Neutral 2	537p	11 May 2005 21:10 BST
Brazil[2b]				
Chevron Corp.[4b,16]	CVX.N	Not rated	US$53.40	11 May 2005 19:34 EDT
China (Peoples Rep)[2b,4a]				
Colgate-Palmolive[2a,4b,16,22]	CL.N	Not rated	US$49.29	11 May 2005 19:34 EDT
DaimlerChrysler[2a,4b,9,13,16]	DCXGn.F	Neutral 2 (RRD)	€31.08	11 May 2005 21:10 BST
Dell Inc.[4a,6a,16,22]	DELL.O	Neutral 1	US$36.54	11 May 2005 19:34 EDT
GlaxoSmithKline[16]	GSK.L	Neutral 1 (RRD)	1,328p	11 May 2005 21:10 BST
Guatemala[2a]				
Heineken[16]	HEIN.AS	Neutral 1	€24.90	11 May 2005 21:10 BST
IBM Corp.[2b,3b,4a,5,8,16,22]	IBM.N	Buy 1	US$73.28	11 May 2005 19:34 EDT
India[4a]				
JD Group Ltd	JDGJ.J	Buy 2	RCnt6,385	11 May 2005 08:20 BST
Lafarge[4a,16]	LAFP.PA	Buy 2	€70.60	11 May 2005 21:10 BST
Lonmin[16]	LMI.L	Neutral 2	950p	11 May 2005 21:10 BST
Merck & Co.[2a,4b,16]	MRK.N	Neutral 1	US$33.50	11 May 2005 19:34 EDT
Nedcor Ltd[4b,16]	NEDJ.J	Neutral 2	RCnt7,670	11 May 2005 08:19 BST
Procter & Gamble Co.[2b,3c,4a,6b,16]	PG.N	Not rated	US$55.48	11 May 2005 19:34 EDT
Republic Indonesia				
Republic of Italy				
Russia[3d]				
Vietnam				
South Africa				
Standard Chartered[2b,4a,14,16]	STAN.L	Neutral 1	973p	11 May 2005 21:10 BST
Thailand				
TNK[8]	TNKOI.RTS	Buy 2	US$4.11	11 May 2005 21:10 BST
Unilever Plc[2b,4a,14,16]	ULVR.L	Neutral 2 (RRD)	541p	11 May 2005 21:10 BST
Xstrata Plc[5]	XTA.L	Buy 2	914p	11 May 2005 21:10 BST

Source: UBS. BST: British summer time; EDT: Eastern daylight time.

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