1980's (and for decades before that). Although there appeared to be a slight preference for the CIS region, it was detected that sentiment was more attuned to the vast potential of these enormous regions; mining investors basically cannot afford to ignore them. In other words, the expected rewards tended to outweigh the uncertainties (or risks) attached to the political and economic transitions underway, even though these will probably continue for many years still.

One executive commented that China offered a more stable investment environment than the CIS because China had liberalized its economic policies but had maintained a firm hand on the political structures. On the other hand, the CIS had liberalized both elements at the same time which could make the transition far more difficult to control. There was a danger that the CIS could eventually break up, heralding regional instabilities and rendering investment even more hazardous.

Referenced opinions

Rath (1995), writing for the Mining Journal, certainly shares similar views on Latin America as those given by the executives. Exploration expenditures in the region have soared to US$500 million, five times the level of four years ago. Comment was also made that Chile started meaningful reforms in the mid-1970s and, although other Latin American countries have been

reforming of late, the 'risks are an order-of-magnitude higher' than Chile. Presumably this is because it takes time for new policies to become entrenched and the country to show a stable track record.

The comparative lack of interest in mining investment in Brazil has been ascribed to the constitutional restrictions on majority foreign ownership (Mining Journal, 1992b: 61). It is debatable how long Brazil can remain the 'odd one out', however.

Aldous (1993: 273) offers views on trends in development activity by country or region, which broadly concur with the opinions of the executives in the survey. The views were qualified, however, in that they were based on subjective observations and initial statistics (originally sourced from the Metals Economic Group in Halifax, Canada) on exploration expenditure. Latin American countries were attracting a strong following and, although Africa was widely perceived as a risky prospect, there appeared to be some renewed interest emerging. It was even observed that the South African mining houses were 'more comfortable with Africa' and activity has been picking up noticeably from this quarter. Specific mention was made about the CIS, its vast land mass and mining expertise, but there have been difficulties in implementing the requisite free market and legislative structures.

A good example of the potential in the CIS can be found in the Sukhoi Log gold deposit in eastern Siberia (Mining Journal, 1995c: 129). The resource has been estimated to contain in-situ reserves of more than 80 million ounces (2500 tonnes) gold, some four times the 1994 gold production of the South African gold mining industry (COM, 1994). Gaining the necessary rights to develop the Sukhoi Log area was apparently a protracted affair but, by all indications, was entirely worth the effort.

Of relevance to the negative view of PNG (Mining Journal, 1994) was the recent case where landowners were claiming from BHP, the managers of the Ok Tedi copper/gold mine, some A$4000 million because of alleged pollution to the Fly river from mining activities. This has been only one of several disputes involving local landowners and the operators of PNG mining projects. These situations can only increase investors' nervousness about PNG and the relative safety of longer term capital in that country.

2.3.5 Question topic 5: Rates of return (IRR) and payback periods

Assuming a risk free internal rate of return (IRR), i.e. government bonds etc., as the base reference point, what premium return (in percent) and then payback period (PBP) would entice you to invest in a 'world class' deposit in the following regions and countries? Also, in similar fashion to question topic 4.,

indicate the measures you would have expected in the 1980's (leave blank if no difference).

Table 2.5 overleaf displays the averages of the responses and Figure 2.2 thereafter presents the same information in ranked, graphic format.

It is pointed out that the figures reflect the opinions of the U.S. executives only. The S.A. executives made the following comments:

* returns on non-S.A. mining projects should be at least double those expected in the S.A. mining environment.

* more attention should be applied to payback periods when investing in unfamiliar countries.

Discussion and interpretation

It was surprising to see the magnitude of expected returns and the payback periods that would be required by the U.S. executives (see also the referenced opinions below). There was, however, consistency in that the individual responses were of a similar order of magnitude and that there was an inversely proportional relationship between the two measures, i.e. high IRR / low PBP.

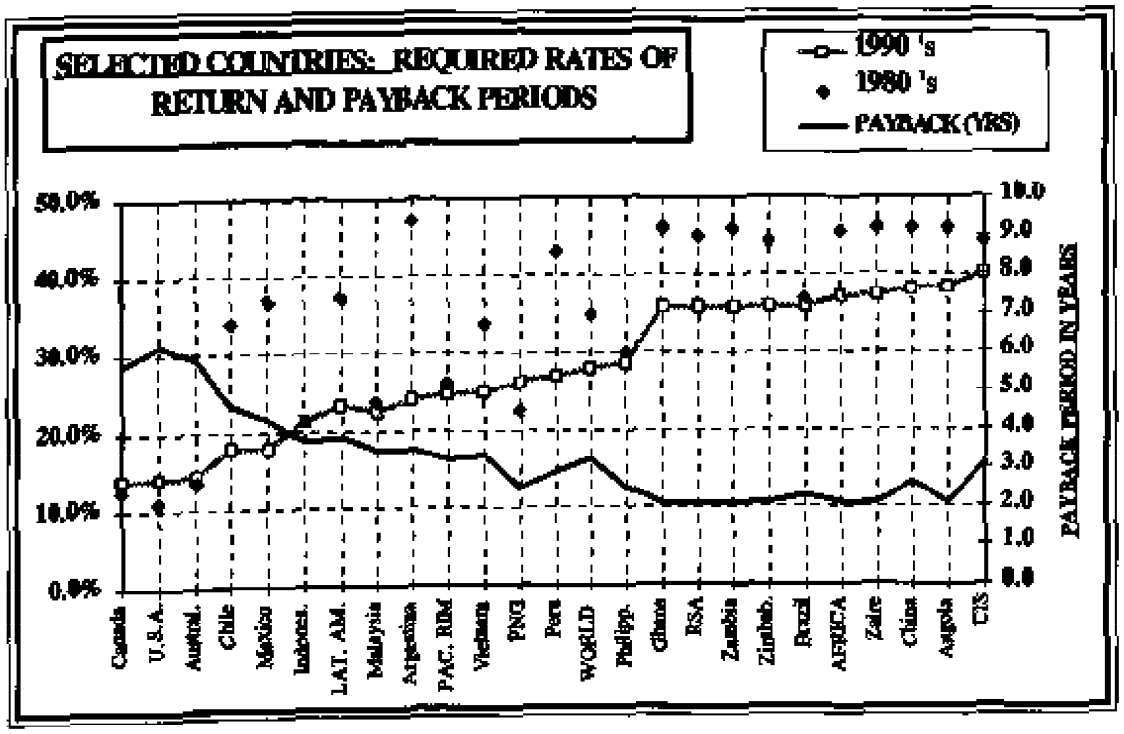
Table 2.5 Survey responses: Rates of return (IRR) and payback periods

REGION/Country	The 1990's		The 1980's	
	IRR (%)	PBP (yr.)	IRR (%)	PBP (yr.)
	**Averages of responses given			
AFRICA	37.0	2.1	45.4	1.9
Angola	38.3	2.1	45.8	1.9
Ghana	35.8	2.1	45.8	1.9
South Africa	35.8	2.1	45.0	1.9
Zaire	37.5	2.1	45.8	1.9
Zambia	35.8	2.1	45.8	1.9
Zimbabwe	35.8	2.1	44.2	1.9
LATIN AMERICA	23.3	3.8	37.2	2.5
Argentina	24.0	3.5	47.0	1.7
Brazil	36.0	2.3	37.0	2.5
Chile	18.0	4.7	34.0	3.5
Mexico	18.0	4.3	37.0	2.5
Peru	27.0	2.9	43.0	1.5
PACIFIC RIM	24.8	3.2	26.0	2.9
Indonesia	21.3	3.8	21.3	3.5
Malaysia	22.5	3.5	23.8	3.3
Papua New Guinea	26.3	2.5	22.5	3.8
Philippines	28.8	2.5	30.0	1.8
Vietnam	25.0	3.3	33.8	2.0
OTHERS				
Australia	14.3	5.9	13.3	5.7
Canada	13.8	5.7	12.5	6.2
China	38.0	2.6	45.8	1.1
C.I.S.	40.0	3.1	44.3	1.2
USA	14.0	6.3	10.8	7.2
World "Index"	28.0	3.3	34.4	2.8

** The regional figures may not exactly equal the average of the underlying countries' figures because some executives only gave

responses for the regions. World "Index" represents the overall operating environment.

Figure 2.2 IRR and payback period: Country and region ranking



For the 1990's (the 1980's are compared in brackets) the two extremes were:

* African countries as the least attractive, with an expected IRR in the 35-40 per cent (40-50 per cent) per annum range and PBP of 2 (<2) years, and

* the U.S. and Canada in the 13-15 per cent (10-14 per cent) per annum range with a PBP of 5-7 (6-8) years.

Between the above two regions, Latin American countries were attractive to financiers with IRRs ranging from 18-36 per cent (30-50 per cent) and PBPs ranging 2-5 (1-4) years. A project in Chile, the "darling" of the developing regions, would need to register an IRR of just below 20 per cent (34 per cent) per annum and a PBP of 5 (3,5) years. The Pacific Rim was rated between Africa and Latin America but was closer to the latter region's ratings.

These ratings were mostly consistent with the coded responses given for the exploration attractiveness analysis (question topic 4). There was an exception in the ratings for the USA, Canada and Australia where, for exploration, these regions' attractiveness was not much higher than for Africa. For the production phase, however, they were still considered the least risky. This may appear a contradiction but it could be argued that North America and Australia have been relatively over-explored. The chances of finding deposits in the developing regions, profitable enough to counter the risks involved, appeared to be far greater. An additional explanation could be that the prospectors' speculative desire to achieve the enormous capital gains if an exploration programme made a new discovery of a world class mineral deposit.

In retrospect, and notwithstanding the USA-Canada-Australia anomaly, it may not have been necessary to differentiate between the exploration and production

phases. Most executives mentioned that the country or regional rankings would be similar for each phase. This indicated that, in the decision-making process, focus was placed on the mining investment codes (as discussed previously in question topic 3) and that a thorough evaluation would be carried out before committing funds even to an exploration programme.

An interesting dimension that emerged from this section of the survey was the differing perception of risk and return between the U.S. and South African executives. U.S. based executives regarded most countries in Africa as relatively unattractive, while South African executives tended to be far more positive about involvement in the continent. This probably can be attributed to familiarity and experience with an operating environment, let alone the benefits derived from accessibility, that is, the USA with Latin America and the RSA (and Europe) with Africa. In other words, executives tended to see their own operating base as the investment reference point for measuring risk and return. Following on from this, some issues can be highlighted for strategic planning purposes:

* The benefits of foreign firms joint venturing with local partners instead of transferring tried and tested (in another environment) personnel. The latter might find it difficult acclimatizing to radically different conditions, culturally and otherwise. In this context mention was made by one executive of

recognizing the full range of costs of moving personnel out of familiar culture and "comfort" zones.

* The ability of the older generation in the mining industry to accept the need to diversify away from familiar and traditional environments. If the appropriate, and possibly uncomfortable, strategies were not implemented timeously, earnings growth might suffer in the long run, relative to competitors.

In essence, these issues allude to the management of change.

Referenced opinions

McDonald (1993) reviews the issue of rates of return from an historical perspective of the Australian mining industry. He offers a succinct explanation of the valuation of shares in the market-place where a share price adjusts to the investors' expected return, based on projections of earnings (or dividends) and the share price at the end of the period. Based on this premise McDonald carried out an analysis of the returns achieved by the Australian industry for different intervals over the last 100 years.

It appears that the real return <u>actually</u> achieved by investors was of the order of 3 - 5 per cent per annum. However, a case was made that the <u>required</u> returns were

more towards the 6 - 7 per cent range, when allowing for the cyclical (risk) nature of the mining industry. Even so, McDonald mentioned that the mining industry's managers were using real discount rates of 10 - 15 per cent in project evaluations. These levels compare closely with those shown for Australia in the executive survey and, by analogy, must be a fair reflection of the returns required on North American mining investments. McDonald does pose the question whether the latter returns are too onerous, thereby stifling the amount of development that the market returns suggest should be taking place.

Attention is drawn to the findings of a survey initiated by the World Bank (1992) which are discussed later in section 2.4.2. Briefly, however, the returns required by respondents on mining investments ranged from 25-30 per cent for developing countries and 20 per cent for industrialized countries. The payback periods envisaged were 2-4 years and 5-6 years respectively. These figures broadly agree with those given in the executive survey and by McDonald (op. cit.).

2.3.6 Question topics 6 & 7: Incomplete results

Two other topics were included in the questionnaire which are shown for the record in Appendix D. Although several executives did offer their comments and opinions, there were no clear, discernible trends. In

hindsight it was apparent that the responses were rushed because of time constraints after completion of question topics 1 through 5. It was unfair in the circumstances to expect executives to give well-considered views of detailed subjects such as those in topics 6 and 7.

Briefly, the objective behind topic 6 was to gauge the trade-off between low value per unit mass, e.g. iron ore and copper concentrates, compared with the high-value per unit commodities, e.g. diamonds and gold. It is probably logical in any event that focus should be on the latter commodities due to infrastructural problems in developing countries.

Question topic 7 was designed to draw opinions on the range of skills (or emphasis) needed in today's international mining environment. It was disappointing that more time could not be spent on this issue. Comments that were provided, however, indicated that this would be a particularly useful subject for further research. It would encompass the impact of cultural mixing, the influx of technological innovation, the availability of skills, training requirements and the costs attached.

2.3.7 Feedback on the survey

This concludes the questionnaire format but please would you add any issues which have not been adequately addressed ?

No further comments were put forward by the executives. They were asked, before closing each interview, to give their honest views on the questionnaire (not all executives participated in this, however):

Do you think the questionnaire has been:	
A worthwhile exercise?	Yes: 9
Interesting for you?	Yes: 9
	No : 1
Too long? (mark your choice)	Yes: 2
Too short?	
About right?	Yes: 8
Timely at this point in the history of the mining industry?	Yes: 12

2.4 Findings of Other Surveys

In order to add credence to the results of the executive survey relevant sections of three other surveys have been compared.

2.4.1 Otto's survey

Otto (1992) undertook a survey to evaluate the criteria that mineral companies used when making mining

investment decisions. The survey's structure was quite different to the executive survey but the theme comparable. Furthermore, Otto's survey concentrated on countries in the Asia-Pacific region whereas the executive survey had a more global perspective.

Otto's survey was carried out by mailing questionnaires to 100 companies world wide. Initially there was a poor response rate and companies had to be contacted again by telephone or fax transmission. Eventually the following response rates were recorded:

Companies contacted	:	**100**
Completed questionnaire	:	**39**
Declined to participate	:	**15**
Companies not responding	:	**45**
Companies responding too late	:	**1**

Otto also found that companies did not answer all parts of questions, similar to the experiences in the executive survey.

A set of results in Otto's survey, comparable with section 2.3.3 (country risk factors) in the executive survey, has been presented in Table 2.6. The table is a reproduction of Table 2.2 in abbreviated format with Otto's results 'translated' and inserted (in italics) as shown. Appendix E displays Otto's table for reference and, to clarify the comparisons, letters have been inserted in Appendix E to show which criteria were

matched with those in Table 2.6. Otto included more categories which were more specific than those used in the executive survey.

Table 2.6 Comparison with Otto's survey findings

	COUNTRY FACTOR	Exploration		Production	
		Execs.	Otto	Otto	Execs.
a.	Infrastructure	1.4	1.8	2.1	2.5
b.	Climate	0.9	1.2	1.3	1.1
c.	Local skills	0.6	1.7	2.0	1.4
d.	Local data	1.5	1.9	N/A	0.6
e.	Management control	1.8	2.7	2.7	1.3
f.	Country experience	1.6	1.4	1.7	1.9
g.	Political stability	2.8	2.6	2.6	2.9
h.	Legal system	2.8	2.5	2.6	2.7
i.	Foreign ownership	2.9	2.5	2.6	2.7
j.	Earnings repatriation	2.8	2.7	2.9	2.9
k.	Price controls (inputs)	2.5	N/A	N/A	2.4
l.	Control of marketing	2.7	2.4	2.6	2.7
m.	Tax regime	2.9	2.6	2.8	2.9
n.	Security of tenure	3.0	2.8	2.9	2.8
o.	Government efficiency	2.7	N/A	N/A	2.5
p.	Environmental regulations	1.8	2.3	2.4	1.9
q.	Host awareness	1.9	N/A	N/A	2.0
r.	World Bank/IFC etc.	1.6	N/A	N/A	2.0
s.	Insurance cover	1.7	1.6	1.7	2.3
t.	Equity partners	0.9	N/A	N/A	1.0

NOTE: N/A = definition match not close enough.

The codes used in generating Table 2.2 for the executive survey were applied to Otto's grading as follows:

Code	Otto's grading	Executive survey
3	very important	major
2	important	moderate
1	not very important	minor

Weighted average calculations were then applied to the distribution of responses in Otto's table.

Allowing for some degree of variance, there were some striking correlations. The criteria relating to country political and legislative structures were considered very important in both surveys, far more so than the technical factors such as climate, infrastructure and previous country experience. There was one particular anomaly, however, where Otto's respondents viewed management control far more importantly. The exact reason for this has not been established with any certainty; it may be due to differing approaches to project management in North America versus the methods applied in developing countries.

Otto's (1992: 339) respondents were also asked to list the three most important criteria when making mining investment decisions. The five criteria mentioned most frequently were as follows:

Exploration decision	Mining decision
Geological potential	Profit potential
Political stability	Political stability
Security of tenure	Profit repatriation
Mining law	Tax level/stability
Mining law stability	Market

It was clear from both surveys that mining financiers pay considerable attention to the stability of political and legislative structures in countries being targeted for investment. These structures ultimately determine the permanency of criteria such as security of tenure, profit repatriation and taxation levels.

2.4.2 The World Bank

Staff of the World Bank (1992) have produced an extremely useful document, 'Strategy for African Mining', which covers a wide range of factors contributing to an enabling environment for mineral investment. Included as part of the assessment were the results of a mailed survey (World Bank, 1992: 16) to 80 international mining companies and, of those, 46 companies responded. Because some responses were incomplete, 40 were eventually analyzed.

Of the criteria listed, which in broad terms were similar to those discussed in the executive survey (see section 2.3.3), the overriding feature was the importance of political stability. Underlying this

basic requirement, the administrative procedures relating to security of tenure, fiscal terms and foreign exchange were major considerations. The greatest fear to investors was unpredictable change to 'the rules of the game'.

Of particular relevance also were the companies' opinions regarding rates of return and payback periods. The figures cited in the World Bank report for developing countries were 25-30 per cent and 2-4 years respectively, compared with 20 per cent and 5-6 years for the industrialized countries. These figures compare quite closely with those given for the executive survey, as shown in Table 2.5, thereby adding some support to their applicability.

2.4.3 The Mining Journal

The Mining Journal (1995a) carried out an analysis of trends in mining investment and activity world-wide. The main findings are noted below:

* According to figures from the World Bank, the level of private capital flowing into developing countries in 1994 was estimated at US$ 173 billion, some four times the figure five years previously. Much of this investment flow has targeted East Asia and Latin America, with Africa and Eastern Europe being relatively low on investors' priority lists.

* Approximately US$2500 million per annum was spent on exploration world-wide, of which some 50 per cent focused on gold and 20 per cent on copper.

* The main reason put forward for these trends was that the risk and reward equation has tipped in favour of the developing nations. All these countries have modified their policies to attract foreign investment, with mining development benefiting particularly from these changes.

* On the subject of exploration preferences by country the Mining Journal cited the results of a questionnaire survey five years ago by the East-West Center in Hawaii. These were then compared with the results of a survey of 60 mining analysts attending a conference arranged by Miami-based International Investment Conferences (I.I.C.) in mid-1994. Table 2.7 summarizes the findings, with countries cited in both reviews being underlined.

The preferences broadly concur with those indicated in the executive survey, of note being:

* the movement of investment away from the industrialized to the developing nations, that is, the USA, Canada and Australia have been dropped from investors' lists; and

* the risk and reward equation moving in favour of the developing world.

Table 2.7 **Mining Journal survey: Country preferences**

East-West Center (Hawaii)	I.I.C. (Miami)	
Australia	Argentina	Kazakstan
Brazil	Bolivia	Mexico
Botswana	Brazil	Peru
Canada	Chile	Philippines
Chile	China	Surinam
China	Cuba	Tanzania
Indonesia	Ecuador	Venezuela
Mexico	Ghana	Zimbabwe
Papua New Guinea	Guyana	
USA	Indonesia	

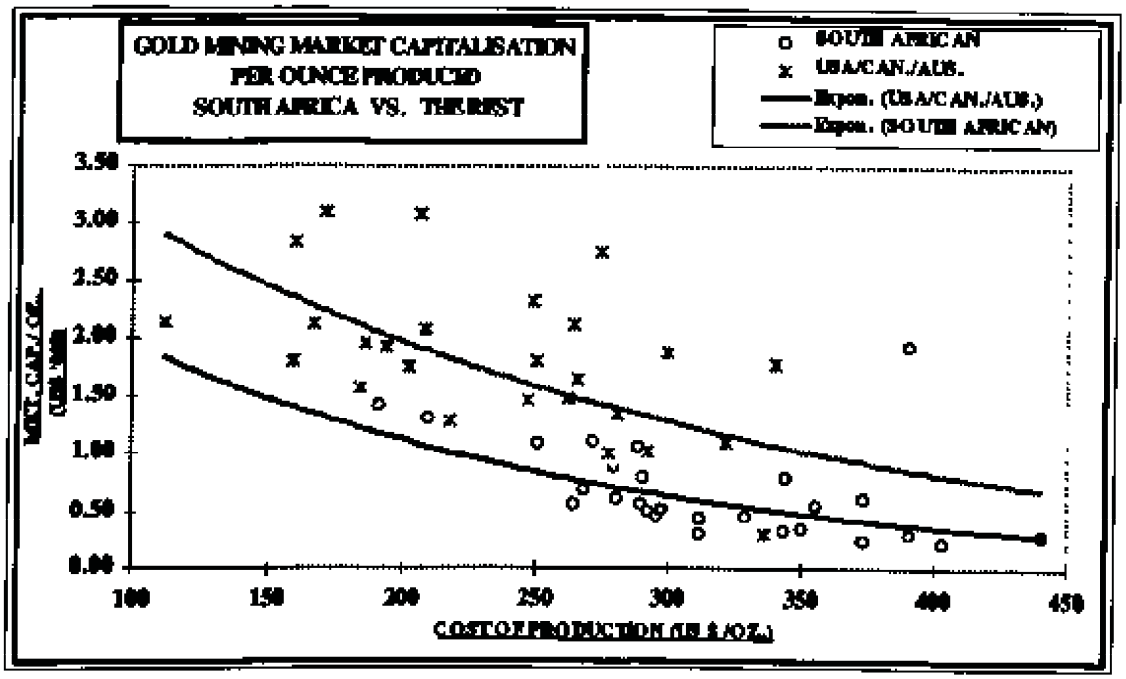
One difference was Brazil which was a preferred target together with Argentina, Chile and Peru whereas, in the executive survey, only the latter countries were attractive. The reason for this cannot be established, save to say that the I.I.C. survey reflects sentiment some nine months later than the executive survey. The executives in the survey may not have anticipated any favourable changes to Brazil's investment prospects at the time.

2.5 Stock Market Valuation of Gold Producers: A Global Comparison

One respondent in the executive survey commented that the value of gold reserves differs considerably between countries or regions (see Appendix C). It was decided to extend this theme by comparing information gathered by the Mining Journal (1995d) on major stock exchange listed gold producers based in North America, Australia and South Africa, including Ashanti in Ghana. A graphical presentation has been provided in Figure 2.3 of market capitalization per ounce produced (MCO: Y-axis) versus production costs per ounce (X-axis), all in U.S. dollars.

In terms of analyzing the importance of operating environments the data has been divided into two groups; the South African producers on the one hand and the North American and Australian producers ('the Rest'- which include Ashanti) on the other hand. A best fit line has been generated for the two groups of scatter points. It was impractical to attach the name of producer to each data point. Appendix F provides the relevant source data should particular points need to be identified.

Figure 2.3 **Gold company market capitalization in U.S. dollars per ounce produced: South Africa vs. the 'Rest'**



Source of data: Mining Journal (1995d)

The differences in MCO between the South African producers (approximately 50 per cent lower) and the North American and Australian producers are just too great to be just a coincidence. The reasons for the differences can be explained in part as company specific but there are the broader issues:

* The South African producers are 'ring-fenced', which means that any prospects for growth are confined to a well defined mining lease boundary. Most of the international producers do not have the same restrictions placed on their activities. The stock market would tend to discount the so-called 'blue

sky' (or growth prospects) for the non-S.A. producers, which then translates into a higher share price and MCO.

* The fact that S.A. Wits basin gold mining is far deeper than elsewhere must also play a part in the evaluating the risk profiles, as would tax rates and labour productivity.

* As has been clearly highlighted in the surveys, political and economic stability plays a major role in investors' decisions. In terms of the risk and return equation a lower price must be paid for assets with perceived volatility in earnings. Although a more sustainable direction for South Africa's political situation has been defined since the democratic elections in April 1994, the country cannot be classified as stable as the industrialized countries.

It appears that international mining finance firms should take cognizance of comparative MCO valuations as shown in Figure 2.3. The information would assist in valuing prospective mining targets and guiding the allocation of exploration and development funds. Clinically, the trend lines show that the production cost of gold purchased at a MCO of US$1000 per ounce would be US$225/oz in South Africa and US$360/oz in North America and Australia.

2.6 A Summary of the Important Issues

A considerable base of opinion has been developed from the executive survey which was mostly supported by the three surveys referenced. Clearly, political events, economic policies, legislative and investment structures markedly affect the flow of mining capital towards particular countries and regions.

Technical criteria, such as geological setting, extent and concentration of mineralization, metallurgical complexity, climate and infrastructure development must also have an impact on a project's value. However, these elements do not present as great a sense of wariness in investor's minds as do the more 'political' issues.

The critical elements that seem to differentiate the socio-political from the technical criteria are the degree of stability, the transparency and predictability. The socio-political environment is primarily a legislative and administrative creation whereas the technical factors are a product of 'mother nature'. History has shown that political structures can change radically and, as a consequence, the economic and investment environment. The technical criteria, although extremely challenging at times, present a degree of permanency and predictability according to the laws of science and nature.

These principles can be demonstrated quite clearly in the cases of Chile, Indonesia and Ghana which are highly rated countries for mining investment, whereas Zaire and Angola have been ignored for decades. The latter are well known for their mineral potential; the Tenke Fungurume copper deposit in Zaire which apparently grades over 5 per cent (Brower, 1987: 23) and then Angola's diamond and other mineral occurrences (Mining Journal, 1992a: 63-65). The political situations in these two countries could be described as extremely difficult, with the dictatorship in Zaire and the continued impasse between Angola's warring factions.

The traditional areas of the USA, Canada and Australia are still attractive but not to the same degree as they were 10 - 20 years ago. The developing regions have been undergoing political and legislative changes that have tipped the risk and return equation in their favour. The results from the executive survey rate, in order of attractiveness, Latin America, then the Pacific Rim countries, then Africa. The ratings of countries within each region can vary quite widely, however, e.g. Ghana (and West Africa) versus Angola and Zaire. The former USSR and China are somewhat enigmatic to investors. There is wariness about their political histories and transitional structures but the regions cannot be ignored because of their vast geographical extent and potential.

Interestingly, many of these underlying issues were discussed in a paper presented at the Joint Meeting of the MMIJ[4] and AIME in Tokyo as far back as 1980. Sakurai (1980: 91) actually addresses the trend prevailing at that time where most, if not all, mining activity was concentrated in Australia, North America and South Africa. The developing countries were largely ignored and the reason given by executives at the time was, pure and simply, 'political risk'. Apart from discussing in more detail the composition of political risk, i.e. unstable administration and structures, two important observations were presented:

* Highly prospective geological areas, and even known deposits, have been left entirely alone in the developing countries (Sakurai, 1980: 93).

* Governments of developing countries should be educated about the investment nature of the mining industry, particularly in respect of creating environments to account for the risks attached to the mining business (Sakurai, 1980: 100).

By logical deduction of Sakurai's observations it must mean that the trends being experienced currently must reflect a different political landscape because of the

[4] The Mining and Metallurgical Institute of Japan (MMIJ) and American Institute of Mining, Metallurgical and Petroleum Engineers (AIME).

renewed activity in the 'emerging' or developing countries.

It was not practical during the executives' interviews to delve any deeper into the reasoning behind the executives' responses and opinions. Although the broader issues have been covered there were still questions as to the actual components of mining investment codes prevailing in various countries. It was decided to collate and compare the range of factors in mining investment codes of selected countries. The data would also provide the basis for a simulation framework so that the impact of various criteria on a mining project could be evaluated.

3.0 REVIEW OF SELECTED COUNTRIES' MINING INVESTMENT CODES

By inference, the surveys' show that the performance of a mining project depends to a considerable extent on the co-operation between the host country (government), on the one hand, and the providers of capital (investors) on the other hand. The motivation to initiate the development of a mining project varies considerably between each participant and some of the more important considerations have been suggested by Brower (1987: 25-28):

Host country's (government) perspective

Positives:

Creation of foreign exchange
Developing national infrastructure
Development of skilled labour
Diversification of earnings
Prestige through economic strength

Negatives:

Threat by powerful multi-nationals
Reliance on hostile foreign based corporations
Reliance on unstable commodity markets
Creation of mining enclaves
Distortion of domestic wage scales
Disruption to social patterns
Creation of crime and corruption

The investors' perspective

Positives:

Replacement of ore reserves

Earn higher profits on lower cost operations

Acquire property to block competition

Diversify into new markets

Diversify geographic, economic and political risk

Negatives:

Threat of nationalization

Non-convertibility of profits

Mineral export controls and interference

Interference in mining operations

Labour problems

Imposition of new taxes

Safety of property and employees

Although most of the considerations are self-explanatory, it becomes apparent that participants need assurances that their individual interests will be respected over the longer term. With that basic premise in mind all countries enact various laws and procedures for foreign investment, and those directed towards mineral development would be no exception. The important element, however, is the extent to which those structures are competitive and attract international investment. This is precisely the underlying theme of this research project.

Notwithstanding the above, Radetzki (1992) sees a new era of co-operation between the host governments and the foreign investor (or multi-national company). The reasoning stems from several factors; the damage caused by the nationalization era of the 1960s and 1970s, the modernization of mining investment codes and a process of privatization (reversal of the nationalization era). The demise of the former USSR was also mentioned as playing a role but the long term effects are difficult to assess with certainty. With these factors in mind the following points were raised by Radetzki:

* The reasons (as listed above) for conflict will always be present but the mutual willingness to increase the so-called 'rents' should prevail.

* The investment 'playing field' should level out between industrialized and developing nations and, because of the relatively unexplored and under-utilized resources in the latter, they are likely to attract a greater share of investment funds.

* The former USSR might become a threat to other developing nations if the transition (to the CIS) proceeds swiftly and the multi-nationals' capital resources become stretched.

* Assuming the above scenario continues on course, and new mineral sources are developed, the threat of over-supply of some commodities becomes a concern.

Theoretically, however, a market that allows economic and investment principles to operate freely should provide the mechanisms to close down inefficient capacity and re-allocate resources.

The big imponderable for investors is whether host governments will revert to nationalistic practices of the past once the profits are being generated and the long term foreign investment has been made.

These more philosophical issues provide an appropriate introduction to demonstrate the range of laws and procedures currently contained in selected mining investment codes.

3.1 Countries Selected

Five countries were selected for the evaluation because of their developing status, geographic distribution and active mining industries:

* Latin America	:	Chile
* SE Asia	:	Indonesia
		Papua New Guinea (PNG)
* Africa	:	South Africa
		Zimbabwe

The intention has not been to regurgitate the 'finer print' but summarize the criteria that participants in

the mineral development business have to face in their investment deliberations. The summary should also assist in reconciling the reasoning behind the responses given in the surveys and the importance of various criteria.

The majority of the information on the selected countries has been sourced from Price Waterhouse (PW, various editions), the international auditing and management firm, who produce the series, "Doing business in ..(name of country).." . These publications are updated every few years and, depending on the date of the last edition, do strive to provide accurate current data.

Coopers and Lybrand (1991), another management and accounting firm, also produce a similar publication, 'Mining Taxation: A Global Survey'. As the last edition was produced in 1991 only back-up reference has been made due to the time that has elapsed. According to the S.A. representative office an updated edition will be available towards the end of 1995.

Other documentation has been used and reference is made where appropriate. Specific mention is made of a series of publications prepared by the Intergovernmental Working Group on the Mineral Industry (IWGMI), Canada during the period 1991-1993. The work carried out by the IWGMI was of a support nature to a government and industry task force set up after the Mines Minister's

Conference in Halifax, Nova Scotia in 1991. The task force was assigned the responsibility of reviewing Canada's international competitiveness in attracting mining investment capital.

The motivation for the IWGMI project appeared to be similar to that behind this research project. Concern was shown by government and industry in Canada that the domestic regulatory conditions were forcing mining firms to transfer more of their exploration and development efforts into the developing regions, particularly Latin America. This issue was well covered in the executive survey.

In any event the IWGMI evaluation sourced much of the mining investment code data from the accounting firms' publications mentioned above. The main achievement of the IWGMI project, however, was that an element of simplification for comparative purposes was introduced.

The following provides a summary review of the main components of the five countries' mining investment codes. More detail has been recorded in the tables and notes in Appendix G, if required.

3.2 Foreign Investment Administration

3.2.1 Procedural guidelines

Chile

Foreign investment into Chile is effected through the Foreign Investment Statute: Decree Law (DL 600) and is subject to approval by the Central Bank and the Foreign Investment Committee (FIC). A separate contract must be signed with the foreign investor and certain aspects, such as the time over which the investment is made, would be stipulated. For mining investments the maximum period allowed is 8 years, which may be extended to a maximum of 12 years to account for the exploration phase (PW, 1994a: 27, 29).

Foreign investors are allowed to own 100 per cent of a project, including the land and property components (PW, 1994a: 32). There are, however, restrictions on foreign participation in certain industries such as oil, gas and uranium. There is a choice of three business entities through which investors can operate; close corporation (not stock exchange listed), a branch office or a limited liability partnership. There are no tax advantages but the latter is the easiest to constitute (PW, op. cit.: 54).

Indonesia

Foreign mining investment into Indonesia is coordinated by the BKPM[5] (PW, 1993: 33, 59), which is a 'one-stop'

[5] The Investment Co ordinating Board, Badan Koordinasi Penanaman Modal.

regulatory agency designed to streamline the permitting process.

Most foreign investment is effected through a limited liability company, the Penanaman Modal Asing (PMA). These entities may be privately owned or ownership spread through a stock exchange listing (PW, 1993: 88).

There are restrictions on foreign ownership in a venture in Indonesia (PW, 1993: 50). Usually local interests (joint venture partners) own 20 per cent initially which must be increased to 51 per cent within 20 years. 100 per cent ownership is allowed if the amount invested exceeds certain limits.

Most foreign investors in the mineral sector make use of the CoW procedure (PW, 1993: 101) which has the following attributes (IMGMI, 1993b: 5):

* It is supported fully by legislation and usually is not subject to modification by later amendments as applied to other contracts.

* Some terms are negotiable but other aspects, such as the fiscal regime, are set by government for the broader economy.

There have been five revisions to the first generation CoW which was issued in 1967. Table 3.1 lists the

number of CoW that have been ratified and the periods covered by each:

Table 3.1 A record of Contract of Work (CoW) agreements in Indonesia

CoW Generation	Period	Total No. of Contracts	Contracts Terminated
I	1967	1	Nil
II	1967 - 1975	15	11
III	1976 - 1984	14	8
IV	1985 - 1987	94	24
V	1987 - 1989	Nil	Nil
Frontier	1990 - 1993	17	N/A

Source: IWGMI (1993b: 5)

The period of the CoW No. V generation did not attract any new investment because the terms were not considered attractive enough because of the:

* removal of an investment allowance,

* less attractive depreciation rules,

* increased dividend tax rate,

* changed debt:equity ratio for tax purposes, and

* dead-rent was doubled.

To improve the investment conditions once again the government introduced the 'Frontier' CoW. This CoW generation not only addressed these negative factors, but provided incentives to companies investing in remote locations, namely; Irian Jaya, Sumba Island and Timor Island. In essence the Frontier CoW recognized and alleviated the cost of development in adverse conditions.

Papua New Guinea (PNG)

All foreign investment (for mining projects) must be registered with NIDA - the National Investment and Development Authority (PW, 1990a: 31). Applications will be accepted only if the investment is directed at an activity considered to be socio-economically beneficial to the people of PNG.

There is a choice of business entity through which to operate (PW, 1990a: 47-50); branches are taxed at a higher rate than subsidiaries but the cost of setting up the latter is higher. Investors can purchase 'shelf' companies through legal or accounting firms.

There are various stages (IWGMI, 1993c: 5) which the investor has to negotiate before proceeding with a mining project. A Proposal for Development has to be approved by the authorities and provides the basis for a Mining Development Contract (MDC) between the State

and the investor or developer. There is a series of requirements attached to the MDC:

* the funding arrangements must be approved;

* traditional land uses must be respected by the developer;

* the State has the right to acquire up to a 30 per cent equity stake in the project; and

* the provincial government and the landowners (by way of a company or association) have the right to acquire up to 5 per cent of the project from the government's equity stake. A portion of this may be on a financial carry basis, that is, no investment required or is non-contributory.

A process has been introduced, aptly named the Development Forum, to facilitate wider consultation between the national and provincial governments, the landowners and the investors or developers. The issues revolve around the guaranteed distribution to the locals of the benefits accruing from the project's development. Examples of matters open for discussion:

* loan guarantees for 'spin-off' businesses in respect of the landowner;

* a special support grant for the provincial government set at one per cent of the product sales value less approved expenditures;

* revised royalty distributions of a minimum 20 per cent to the landowners, with the remainder to the provincial government;

* financial assistance for infrastructure and social improvements; and

* prioritization of training, employment and business development, with landowners first, followed by the province's residents, then other PNG residents.

The impression gained from reviewing PNG's mining investment regulations was that the procedures were far more involved because of the various interest groups. Relative to many other countries these complications were likely to encourage delays and litigation, thereby adding significant costs to the investment process.

South Africa

Foreign investment into S.A. requires approval by the exchange control authorities (PW, 1994b: 52). There is a preference for investment by way of equity (shares) rather than loans (see loan restrictions later). The usual form of business entity is the public or private limited liability company (PW, 1994b: 83).

A further choice would be a branch of the foreign company (PW, 1994b: 99). The main benefit of the branch office is that any losses incurred may be offset for tax purposes against the income from other sources within South Africa.

There are no major restrictions on foreign ownership in S.A. entities.

Zimbabwe

Foreign investment is regulated by the Reserve Bank via the Investment Centre (PW, 1990b: 34). The overall authority, however, rests with the Ministry of Finance, Economic Planning and Development.

The Zimbabwe investment code does not stipulate that foreign investors have to develop mining projects with local entities (PW, 1990b: 39). Although this may be the stated intent, the authorities would prefer to see Zimbabwean shareholder participation over time. The essence of the regulations is that there is a degree of negotiation attached, depending on the circumstances.

A business can be set up either through a local subsidiary or a branch office. Most foreign investors operate through a locally incorporated subsidiary, mostly because of taxation benefits and it indicates a

more 'permanent' presence (authorities' preference) than the branch office approach.

3.2.2 Currency exchange controls

One criterion that the surveys and published documentation were very clear about was investors' access to foreign exchange, specifically in respect of:

* repatriation of capital,

* remittances of profits or dividends on the original investment,

* payment of goods and services to operate the mining project and last, but certainly not least,

* redemption of any loan principal and interest, if applicable.

The important issue is investors' freedom to decide the movement of currency so that resources are allocated efficiently, timeously and without encumbrances. The situation prevailing in the five countries is summarized:

Chile

All foreign exchange transactions are carried out through the Central Bank (PW, 1994a: 29-30) which

issues a non-transferable registration certificate. The certificate authorizes the entry and export of capital, including the transfer of interest and profits. Other elements relating to foreign investment (IWGMI, 1993a: 5):

* Currency for the payment of imports is allowed through the foreign exchange market as administered by the Central Bank.

* Export proceeds must be re-patriated within 120 days and liquidated in the formal market by a commercial bank within 11 days.

* Foreign capital may be repatriated after one year (prior to 31 March 1993 this period was three years), but only with the proceeds from the sale of the investment, net of any tax liabilities, before being approved by the FIC (Foreign Investment Committee).

* Generally, foreign investment is subject to the same legislation as local investment and no discrimination is permitted.

Indonesia

The foreign exchange rules allow investors to move funds freely to and from the country. Some examples of the transactions would be (PW, 1993: 49):

* net operating profits in proportion to the shareholding of the foreign investor;

* sales of shares owned by the foreign entity provided they are sold to Indonesian entities or nationals;

* loan principal, interest payments and royalties insofar as they have been intended for the investment approved by the authorities;

* payment for costs of foreign personnel and the training of Indonesians overseas; and

* full compensation should the company be nationalized at a later stage.

Papua New Guinea

All foreign exchange transactions are administered by the Reserve Bank of PNG (PW, 1990a: 25-29) and most are normally approved. Some examples would comprise:

* repatriation of capital to non-residents;

* foreign capital inflows;

* proceeds from exports, which must be returned to PNG, net of amounts required to cover the next three months' expenditures for the proper functioning of

the project; the calculation being carried out on a continuous basis (IWGMI, 1993c: 6); and

* the registering of shares in the hands of non-residents.

Tax clearance certificates are required by the Central Bank before proceeds related to the following can be transferred from PNG:

* debt funding,
* capital transactions, such as sale or purchase of shares, equipment and land or property,
* royalties, management and licence fees,
* non-resident trust funds, and
* dividend or interest payments to non-residents.

South Africa

Until March 1995, the significant feature of the South African currency exchange system was the dual currency (PW, 1994b: 50); the financial rand and the commercial rand. The financial rand was the mechanism through which capital investments were made (and repatriated), set by the prevailing U.S. dollar rate and according to supply and demand conditions at the time. All other transactions such as proceeds from exports, payment for the importation of goods and services and the purchase of foreign exchange for travel were subject to the commercial rand rate.

The financial rand always traded at a discount to the commercial rand and was extremely volatile at times, varying between 10 and 40 per cent according to investor sentiment about conditions in the country. The two-tier system was scrapped early in 1995 and all currency transactions now take place through the so-called 'unitary' rand.

There are very few restrictions imposed on foreign investors on the flow of their investment funds (PW, 1994b: 55). The important issue for South Africa currently is to attract those funds for long term, permanent investment and development. As has been established in the executive surveys there is fierce competition in the global market place for scarce investment capital; and it will flow to wherever the risk and return balance is favourable.

Zimbabwe

Until 1990 the Zimbabwean economy was highly regulated and the movement of foreign exchange severely restricted (Edwards and Co, 1994). At that time the World Bank and Zimbabwe agreed to work together on an economic structural adjustment programme (ESAP) over a five year period.

One of the benefits of the ESAP was that, since mid-1993, there had been a significant relaxation of

exchange controls. Administration of the process, however, is still vested in the Reserve (Central) Bank. For purposes of illustration, some of the previous restrictions included the following (PW, 1990b: 35-39):

* Foreign investors were allowed to repatriate only 50 per cent of after-tax profits; the remainder had to be paid into a Blocked Account with a registered bank and overseen by the Reserve Bank.

* Mining investors were subject to the same 50 per cent ruling but this could be negotiated on merit (IWGMI, 1993e: 6).

* Strict control was maintained on importation of goods and services, and this severely restricted proper maintenance of production facilities and the ability to perform competitively.

Since the relaxation in foreign investment procedures, Zimbabwe has been experiencing a marked increase in business activity, including mining exploration and development. Zimbabwe provides a good example of the benefits resulting from the lifting of such restrictions.

3.2.3 Restrictions on use of loans

There can be restrictions on the usage of loans by foreign investors, including the level of debt relative to equity (the debt:equity ratio).

Chile

Loans have to be approved and registered with the Central Bank. Applications are usually successful provided the repayment terms (and interest rates) are market related.

In order to reduce the inflow of foreign loans, a ruling has been in force whereby 30 per cent of the principal must be deposited in a non-interest bearing account for one year (PW, 1994a: 30, 41). The alternative is to pay the Central Bank the interest equivalent to the one year LIBOR (London Inter-bank Offered Rate) plus a 4 per cent premium.

There appear to be no other restrictions on loan usage by foreign investors, save to say that it is apparently more expensive to raise loan capital in Chile than offshore.

Indonesia

There are no restrictions on loan financing (PW, 1993: 38, 143) except that the Central Bank maintains a discretionary stance - which probably amounts to

control. Reportedly there have been some limits attached to previous CoW (Contracts of Work).

Papua New Guinea

The Central Bank imposes a maximum limit of 3:1 debt:equity for a foreign investment (PW, 1990a: 27, 42). There is also a period of one year imposed before instalments on the principal can be repaid. For foreign investors operating a local company a debt:equity restriction of 2:1 is enforced. These rules are imposed so that the foreign investor commits a majority proportion of equity capital. No restrictions on overseas borrowing are imposed on companies engaged in mineral exploration.

South Africa

The Reserve Bank prefers foreign investment to be effected through equity rather than loans (PW, 1994b: 52-54). Exceptions to the rule would be considered if there is enough permanent capital to cover all liabilities.

As far as local borrowings to foreign investors are concerned stringent rules have been laid down. The terms are quite intricate but, in general, the Reserve Bank limits a 100 per cent foreign owned company to loan funding amounting to 50 per cent of the foreign capital invested.

Zimbabwe

The terms of foreign loans are negotiated when the investment is approved by the Reserve Bank. There are restrictions on the amount a foreign investor may borrow, specifically if foreign ownership of the company exceeds 25 per cent. A formula is applied in determining the borrowing limit (PW, 1990b: 51-52).

3.3 Security of Tenure for Mining

As has been indicated in the surveys (section 2.0), investors are extremely sensitive about long term security of tenure. The scope of the subject is immense and a full discussion would be impossible in the context of the theme of the research project. Nevertheless, to the extent that secure title supports the stability and value of a mining investment, an overview of the five countries' codes would be informative.

The World Bank (1992: 69) provides a useful summary of the relevant tenure codes and procedures applicable to Chile, Indonesia and Papua New Guinea. Various other sources have been used for the situation prevailing in South Africa and Zimbabwe.

Chile

All mineral rights are vested in the State and the administration of mining and related activities is divided into three phases:

Prospecting Licence: Exploration rights are open to any person or entity on any land not already covered by other mining related licences. Compensation to landowners is expected, however.

Exploration Concession: This restricts activity to a demarcated area not exceeding 5000 hectares. The Concession is renewable only once after a period of two years and for an area half the original size.

Production Concession: Only a holder of an Exploration Concession may apply for a Production Concession. The maximum area permitted is 10 hectares. There are no limits to the number of concessions held, provided all the relevant annual fees and liabilities have been settled.

Indonesia

All minerals' ownership is vested in the State, with all administration and conditions of extraction stipulated in detail within the Contract of Work (CoW - as described above). Although the CoW is a detailed document, investors have been secure in the knowledge that historically the government has respected the

conditions therein. A further positive factor to the procedure is that the CoW offers the concept of 'one-stop' administration, thereby reducing inter-departmental bureaucratic inefficiencies and time delays. Security of title for mining activities is divided into five phases:

General Survey Concession: This encompasses prospecting activities and is valid for one year, and can be renewed for one more year. The usual area under reserve is 25 000 hectares but can be enlarged under CoW agreement. Expenditure of the order of US$45 per hectare is stipulated. Priority is given to the holder to apply for an Exploration Licence.

Exploration Licence: This provides the right to explore for minerals in a reduced area for a period of three years, and includes the right to mine if an economic deposit is delineated. The Licence stipulates a minimum expenditure of US$450 per hectare and detailed reporting procedures.

Feasibility Stage: The period allowed is one year, to be extended for one more year if required, and follows on from the exploration phase automatically.

The project moves into the **Construction Stage** as a natural consequence and the period (usually three years) that was negotiated and agreed upon has to be met. The **Production Stage** is normally granted an