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تأثير الإمكانات الجيولوجية والمناخ الاستثماري على القدرة التنافسية لبوتسوانا

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Abstract:

Objective: This article's objective is to evaluate Botswana's attractiveness to investors in mineral exploration. Botswana's competitiveness and ability to attract exploration and mining investment have declined in recent years.

Method: Questionnaires were used as part of a mixed methodology to collect data that was subjected to empirical analysis. From a possible 231 respondents including exploration and mining companies, mining consultants, a research firm, and a mining association, a representative sample of 100 were chosen and given the survey through a stratified random sampling process. The data was analyzed using SPSS and both descriptive and inferential analyses were utilized.

Result: This study finds that Botswana is only moderately successful in luring exploration investment. Botswana's ability to entice exploration investment is influenced by factors including the country's political stability, mining tax, mineral policy, license approval, quality of geological data, availability of skilled labor, adequate infrastructure, a streamlined licensing process, effective relevant institutions, and clear rules and regulations.

Conclusion: The study recommends that Botswana regulators should consider improving mining tax incentives and continue removing bureaucratic requirements that delay the licensing process, as this may result in a more favorable mining environment that encourages both domestic and international mining interests.

Keywords: *Exploration; Mining investment; Competitiveness; FDI; Botswana.*

الملخص:

الأهداف: الهدف من هذا البحث هو تقييم مدى جاذبية بوتسوانا للمستثمرين في مجال التنقيب عن المعادن. انخفضت القدرة التنافسية لبوتسوانا وقدرتها على جذب استثمارات التنقيب والتعدين في السنوات الأخيرة.

المنهجية: تم استخدام الاستبيانات كجزء من منهجية مختلطة لجمع البيانات التي خضعت للتحليل التجريبي. من بين 231 مشاركًا محتملًا، بما في ذلك شركات التنقيب والتعدين، واستشاريي التعدين، وشركة أبحاث، وجمعية تعدين، تم اختيار عينة تمثيلية مكونة من 100 شخص وأجريت عليهم الدراسة الاستقصائية من خلال عملية أخذ عينات عشوائية طبقية. وتم تحليل البيانات باستخدام برنامج SPSS.

النتائج: توصلت هذه الدراسة إلى أن بوتسوانا حققت نجاحًا متوسطًا فقط في جذب الاستثمار في مجال التنقيب. تتأثر قدرة بوتسوانا على جذب الاستثمار في مجال التنقيب بعوامل تشمل الاستقرار السياسي في البلاد، وضرائب التعدين، وسياسة المعادن، والموافقة على التراخيص، وجودة البيانات الجيولوجية، وتوافر العمالة الماهرة، والبنية التحتية الكافية، وعملية الترخيص المبسطة، والمؤسسات الفعالة ذات الصلة، والقواعد الواضحة، واللوائح.

الخلاصة: توصي الدراسة المجالس التنظيمية في بوتسوانا بالنظر في تحسين الحوافز الضريبية للتعدين ومواصلة إزالة المتطلبات البيروقراطية التي تؤخر عملية الترخيص، لأن ذلك قد يؤدي إلى بيئة تعدين أكثر ملاءمة تشجع مصالح التعدين المحلية والدولية.

الكلمات المفتاحية: *الاستكشاف؛ الاستثمار التعديني؛ القدرة التنافسية؛ الاستثمار الأجنبي المباشر؛ بوتسوانا.*

1 Introduction

Since the 1970s, when minerals were first discovered there, Botswana's economy has grown rapidly, lifting the country from poverty to middle income status (International Trade Administration, 2022). This achievement is linked to the presence of mineral resource endowment, political stability, a sound institutional framework, fiscal discipline, macroeconomic stability, competitive taxes, robust governance, a strong legal framework, a low prevalence of civil unrest or disorder, and minimal government interference in the mining sector (LaRocco & Mogende, 2022). Over the course of Botswana's mining history, major corporations like De Beers, Anglo American, Norilsk Nickel, Rio Tinto, and Lion Ore have invested in the country due to its favorable business climate. Botswana's success with natural resources is not the norm however, as many other African countries have struggled with the 'burden' that comes with resource endowments (Stephen, 2021). Examples of these struggles include violence and conflict over ownership and distribution of windfalls from resources (Arif, Usman, & Khan, 2021); another example is the unpredictability that comes with falling and volatile commodity terms of trade meaning that in the long run, public finance can be reduced, discouraging investment (e.g., oil price crashes of 2020-21 due to COVID 19 lockdowns) (Lashitew & Werker, 2020; Asaad et al. 2022 and 2023).

Investment-inducing elements are a conglomerate of factors where institutions and policies form the basis of a nation's competitiveness, which determines the level of that nation's production capabilities (KPMG, 2019). When compared to other countries, the investment and production activity climate improves if such variables have a large impact on productivity. The literature on competitiveness shows that different countries face various challenges at different stages of development, and that the policies, strategies, and tactics intended to build a competitive edge should be matched to the development stage (Buitrago & Barbosa Camargo, 2021).

Key factors that made Botswana an attractive investment destination in the 1970s and 1990s appear to have less of an impact now that the country has achieved middle-income status. Botswana's economy is growing slower compared to other African countries and there has been little progress in diversifying the economy beyond its reliance on natural resources, despite the country's long history of economic success (Botswana Government, 2017). General competitiveness and mineral exploration and mining investment competitiveness both declined after the year 2000. According to the 2011/12 edition of the Global Competitiveness Report, the country's overall ranking has dropped from 56th in 2008 to 80th in 2011/12 (Tabengwa, 2011). Figure 1 shows that the country's standing has dropped from #79 in 2013 to #91 in 2019 (Trading Economics, 2022).

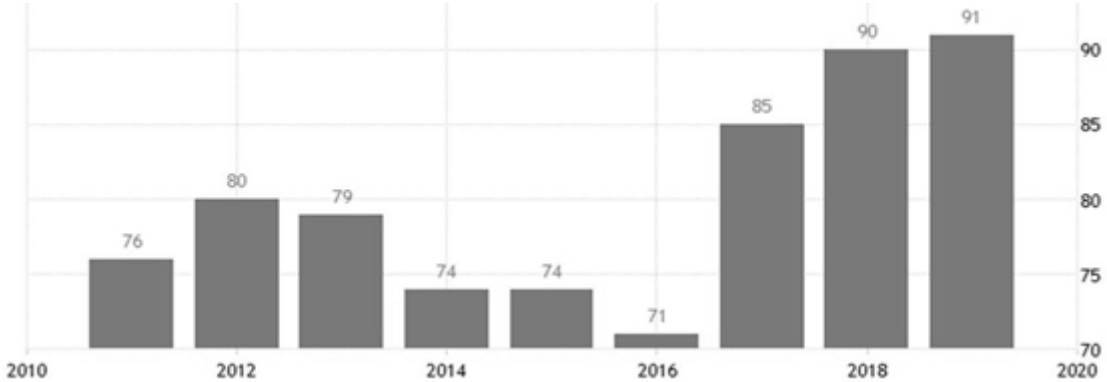

Figure (1): Botswana's Competitiveness 2013 to 2019
Source: Trading Economics (2022)

The country's improvement in rankings from 76th in 2011 to 74th in 2014 to 71st in 2016 is encouraging. However, from in 2017, the country's rankings declined, falling to #85 in 2017 and #90 in 2018.

Similarly, as shown in Figure 2 below, the country's attractiveness to exploration investment has been declining. Botswana scored an impressive 83.65% in 2011/12 and in 2012/13, she scored 81.92%, placing her at #4 out of 93 jurisdictions (Fraser Institute, 2021). By 2015 Botswana scored 68% for attractiveness and the number dropped to just over 60% by 2019.

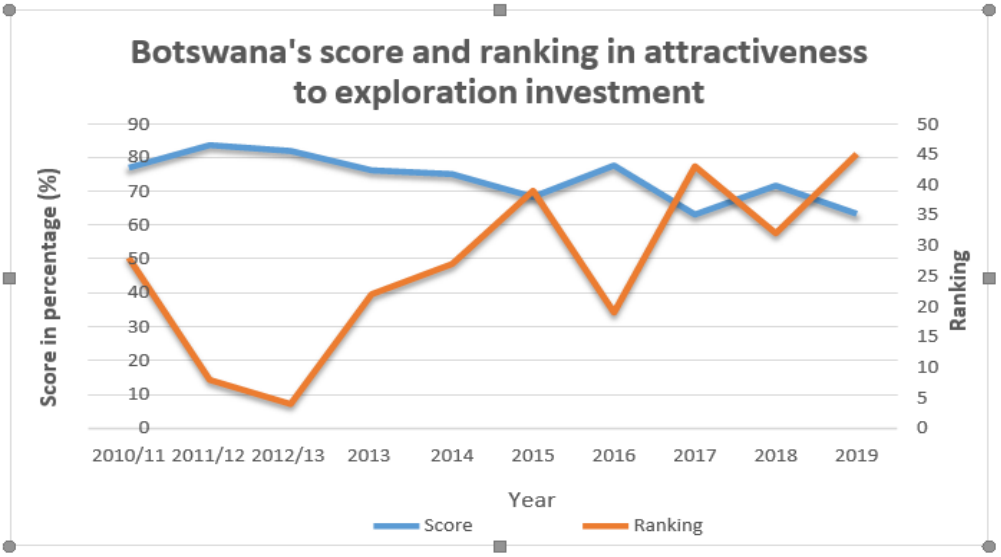

Figure (2): Botswana's Competitiveness in Exploration Investment
Source: Fraser Institute, (2013, 2016, 2020, 2021)

Countries rich in mineral resources, especially those with less diversified economies that rely heavily on mining, must be able to entice investors to fund mineral exploration if their mining sectors are to thrive (Okada, 2022). The mining industry in Botswana is crucial to the country's economy, as it generates a large portion of the country's GDP, taxes, and jobs, and helps keep the country's economy stable. Therefore, for Botswana to gain an edge, it must enhance factors affecting its ability to attract mineral exploration investment or investment climate. An evaluation of Botswana's attractiveness to investors in mineral exploration was undertaken for this reason. This was accomplished by using a questionnaire distributed to a sample of the exploration and mining population (including companies in the exploration and mining sectors as well as those in the consulting, policy, and research sectors, and the mining association). Because of its convenience, objectivity, and reliability in producing reliable results, a quantitative research methodology was used to conduct this study.

The study's findings will benefit those working within the Ministry of Mineral Resources, Green Technology, and Energy Security, who can use them to foster a more favorable environment for mining and exploration investment. The mining industry's long-term viability and overall economic contribution to Botswana's economy will increase with increased exploration efforts. The study's findings will likewise add to the body of literature on the factors that determine a nation's exploration and mining competitiveness.

2 Literature Review

2.1 Investment Climate

Despite the advantages that countries should have under the theory of comparative advantage, many countries rich in mineral resources have been unable to attract investment companies and develop their mineral resources (Liu, Saleem, Al-Faryan, & Zafar, 2022). Further investigation into the topic led to an alternative theory, according to which, mineral production competitiveness is influenced by both resource endowment (mineral potential) and government policies (investment climate) as per Weldegiorgis, Dietsche, Franks, Cust, & Ahmad, (2022), who used a Q-methodology that combined qualitative and quantitative methods.

The interplay between geology and institutions is what makes the mining sector competitive (Castilloa & Roa, 2021). Companies in the exploration industry have reported that policy considerations account for 40% of their investment decision, while mineral potential accounts for the remaining 60% (geological attractiveness) (Fraser Institute, 2021). Uncertainty in the administration of current regulations, environmental regulations, regulatory duplication, the legal system and taxation regime, protected areas and disputed land claims, infrastructure, socio-economic and community development conditions, trade barriers, political stability, labor regulations, the quality of a geological database; security; and the availability of labor and skills are all policy factors that reduce mining investment (Fraser Institute, 2021). The Fraser Institute uses "survey

responses to policy factors that affect investment decisions" (Fraser Institute, 2021: 2). Therefore, it stands to reason that if all the factors mentioned in this paragraph are improved, then mining investment increases.

Furthermore, countries with a higher investment climate compete for mining investments based on their mineral endowment, whereas countries with a lower investment climate rely on the interaction between their geological potential and investment climate to determine mining competitiveness (Jara, 2017). Mining competitiveness is largely determined by a country's investment climate, as stated by Cordano and Zevallos (2020) who used a cross-sectional dataset of 72 countries and a quantitative Poisson PML model (PPML).

The right investment environment is created by the right human and intellectual capital skills and the right attitude in addition to robust policies and efficient processes. Factors that provide comparative advantages, which determine the production possibilities or opportunities of an economy, should help foster investment and productivity (Erokhin, Diao, & Du, 2020; Ferreira, Cardim, & Coelho, 2021). Inadequate conditions for investment can reduce returns on capital, make it difficult for businesses to make informed decisions, and have a negative effect on output.

To be effective, a mineral policy must address issues such as the time needed to acquire exploration and mining rights, the frequency with which these rights must be renewed, how rights may be transferred, the measures to ensure the security of those rights, the holder's responsibilities, and the steps necessary to move from exploration to mining (Fraser Institute, 2016). A nation that eases these restrictions would be a better option for mining companies looking to establish operations there.

In a bid to address unethical mining practices, the OECD created 'Due Diligence Guidelines for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas'. Jewelry production costs are impacted by these criteria (Bleasdale, 2018). Some participants in the Kimberly Process Certification Scheme (KPCS), including the Civil Society and the Diamond Industry, are lobbying for the adoption of the United Nations Guiding Principles and the Due Diligence Guidelines, as part of the KPCS minimum requirements, because of their influence on mine workers' productivity, the company's public image, and the country's competitiveness (Kimberly Process Civil Society Coalition, 2019). Despite the ongoing labor issues on the African continent, the diamond industry sees this as a positive step toward maintaining consumer trust in the diamond market. In addition, the African diamond-producing countries welcome the additional layer of compliance. Therefore, in the current global economy, factors such as labor policy, human rights protection laws, consumer demands, responsible sourcing principles, and enforcement of the same by nations all play a role in an investor's final decision (Maher, Monciardini, & Böhm, 2021).

2.2 Geological Potential

Mineral potential refers to the region's favorable geology for attracting exploration funding. Using data collected over a period of two years from 45 different African countries, Njuguna and Nnadozie (2022) conducted an empirical study of the factors that attract Foreign Direct Investment (FDI) from African countries. They found that a country's natural resource endowment is one of the primary factors driving FDI in Africa, which is consistent with previous studies (Dimitrova, Rogmans, & Triki, 2020).

Potential mineral resources and geological resources are synonymous (Fraser Institute, 2011). Mineral potential is defined by McLemore (2018) as the possible presence of mineral deposits or mineralization. According to a region's total mineral endowment can be broken down into two groups: discovered resources and undiscovered resources (Kivinen, Pokki, and Markovaara, 2018). Where the resource is defined as a concentration of a naturally occurring solid, liquid, or gaseous material in or on the earth's crust in such a manner that economic extraction could be feasible immediately or in the future. A resource with known grade, quality, and quantity is said to be "identified." In contrast, untapped resources are geological formations that have yet to be located, even though their existence is predicated on the general understanding of the broad regional geology and theory. Mineral exploration and mining are, essentially, investments because mining and exploration companies expect future cashflow to be sufficient to cover costs and make a profit (KPMG, 2019). Investment choices like these are grounded in geological potential.

Countries such as Canada and Finland have realized the importance of their geological potential in attracting exploration corporations. Canada is a leading producer of a wide variety of minerals, including potash, primary aluminum, cobalt, diamonds, molybdenum, nickel, platinum group metals, salt, titanium concentrate, tungsten, uranium, and zinc. Finland's success in luring exploration investment is tied to the country's abundant geological resources (Fraser Institute, 2020, Government of Canada, 2022).

The studies discussed above detail factors that influence mineral investment in other countries. However, not all these factors may be important for Botswana, because of its cultural and economic differences. Therefore, it is important to conduct this empirical study to gain a better understanding of what works and does not work in Botswana.

3 Methodology

Botswana's international competitiveness for mineral exploration investment was analyzed using a questionnaire to collect data from its intended sample of 200 exploration firms, 17 mining firms, 12 consulting firms, one policy firm, and one mining association (all in Botswana). Numerical values were assigned to the variables, and a variety of statistical methods were used to analyze them. Considering the size and variability of the total population of 231, a sample size of 100 was chosen using a probability-based sampling method. This sample includes a representative number of members from each population subgroup. The study recorded a total of 88% response rate using a survey and the responses were received via emails.

Most of the questions in the study's questionnaire were designed to be answered by selecting one of several predetermined options. The respondents were asked questions using a Likert Scale to rate their levels of comprehension, awareness, and agreement. The "attitude" is measured in a way that is both universally recognized and verified by science: the Likert scale. On a Likert scale, participants were asked to indicate how much they agreed or disagreed with each statement. The totality of the comments exposed a nuanced aspect of their stance on the issue, and so were inextricably linked (Joshi, Kale, Chandel & Pal, 2015). As you can see below, the Likert Scale is formatted in the following way:

1 = Strongly Disagree; 2 = Disagree; 3 = Neutral; 4 = Agree; 5 = Strongly Agree

The highest value of 5 and lowest value 1 was used to compute an average of 0.8, which is then used as the weight that demarcates the strongly disagree to strongly agree classification. If a mean response falls in the range of 1 to 1.80, it is construed as strongly disagree, whereas 1.81 to 2.60 is understood as disagree. Similarly, 2.61 to 3.40 is moderately agree, while 3.41 to 4.20 is agree, and 4.21 to 5 is strongly agree (Asun, Rdz-Navarro & Alvarado, 2015).

The Appendix displays the breakdown of the survey questionnaire into its five major sections, which correspond to the aims and objectives of the study. The purpose of the survey was to collect information necessary to gauge how well Botswana attracts foreign investment in mineral exploration. This paper is based on responses to Section B: 'Competitiveness in Mineral Exploration Investment'.

SPSS was used for both descriptive and inferential analyses of the data. This research was conducted during the COVID-19 pandemic, when there were periodic lockdowns, restrictions on movement, the closure of some businesses, and certain health protocols to follow. As a result, there were gaps in the sample that needed to be filled with substitutes. The researcher distributed the questionnaire by email.

4 Discussion

Most of the participants held senior positions in their workplaces and have several years of work experience. Table 1 shows that more than half of respondents at 56.8% (n= 50) had over 20 years of work experience. Those in the range of 16 to 20 years of work were at 22.7% (n= 20), whereas those in the 11 to 15-year category were at 9.1% (n= 8). Two categories of 3 to 6 years and 7 to 10 years were both 4.5% (n= 4) respectively, while those with 2 years or less were only 2.3% (n= 2) of total respondents.

Table (1): Description of participants

Employed as	Frequency	Percent	Experience
Exploration Managers	2	2.3	2 years and less
Project Managers	4	4.5	3 to 6 years
Mining Managers	4	4.5	7 to 10 years
Consultants Managers	8	9.1	11 to 15 years
Consulting Partner	20	22.7	16 to 20 years
Research Managers	50	56.8	20 years plus
Total	88	100	

Source: Author's calculations

4.1 Effectiveness of Botswana's Mineral Exploration Investment

Validity was established using factor loading metrics, as demonstrated by the Kaiser-Meyer-Olkin (KMO) test, the Bartlett test of sphericity (BTS), and the Average Variance Extracted (AVE). The standard deviation (SD) and the mean were used to assess the reliability of each scale item on the research instrument.

The effectiveness evaluation results of the construct for Botswana's competitiveness in mineral exploration investment are shown in Table 2. All the factor metrics for the separate scale items are greater than 0.5, ranging between the values of 0.623 and 0.784. As the 0.753 value for the KMO metric of sample adequacy is well above the 0.5 threshold for statistical significance, the study can be considered statistically adequate. The BTS is significant at the 0.01 level. Furthermore, the evaluative factors account for an average of 72.7% of the total explanation of Botswana's competitiveness in mineral exploration investment. This is consistent with the findings of Aiginger, Bärenthaler-Sieber and Vogel (2013), who found that the decision to explore and develop mineral resources in a country was affected by several factors, including the presence of good policy, adequate infrastructure, the availability of human and intellectual capital, social and political stability, the existence of clear and reliable institutions and regulations, an adequate tax regime, and specific racial and ethnic demographics.

Table (2): Effectiveness of Botswana's Competitiveness

	KMO	Bartlett	Mean	SD	AVE	Factor Metrics
Statements	0.753	350.738			72.697	0.0**
B1	0.78		2.89	0.915		0.784
B2			2.98	1.144		0.762
B3			2.64	1.116		0.719
B4			3.57	1.102		0.705
B5			3.2	0.924		0.623
B6			4.11	1.033		0.727
B7			3.39	1.098		0.746
B8			3.43	1.015		0.698

Source: Author's calculations

Key

B1: Botswana's mineral policy improved over the past 5 years.
B2: Licensing processing time improved over the past 5 years.
B3: Licensing time for exploration was reduced to under 3 months in past 5 years.
B4: Geological data useful for exploration decisions.
B5: Mining tax positively influenced investment decisions.
B6: Political stability encouraged exploration over the past 5 years.
B7: Infrastructure availability encouraged exploration over the past 5 years.
B8: Requisite skills availability encouraged exploration over the past 5 years.
B9 = Mining jurisdiction met timelines for licensing over the past 5 years.
r = Pearson correlation coefficient.

The mean values of the scale's components are also shown in Table 2. Respondents are generally in agreement that Botswana's mineral policy has strengthened over the past five years (mean=2.89, n=88). This suggests that more work is needed to make the country's minerals policy more convincing to interested parties. In addition, the average time it takes to get a license to conduct exploration activities has decreased to less than three months (mean = 2.64) over the past five years. Also, respondents are on average 2.98 out of 5 points in agreement that the time it takes to process a license has decreased over the past five years. They were also mostly in agreement that mining tax incentives and infrastructure availability have both increased (mean = 3.20, median = 3.39).

Respondents voiced concerns about a lack of transparency and inefficiency within the licensing institution and the licensing processes. This may be due to a mineral policy that is ineffective because it does not cover the turnaround time for exploration and mining rights, clear environmental requirements, and requirements for downstream processing, and is characterized by a lack of transparency and discrimination, all of which contrast with the recommendations for an effective mineral policy made by Biau and Pfister (2014). Authorities should put more effort into streamlining licensing processes and increasing transparency if they want the changes to be universally accepted.

The respondents also agreed that the country's geological data is helpful for exploration decisions (mean = 3.57), and that the country's political stability has helped to boost exploration investment (mean = 4.11). There has been an increase in exploration over the previous five years (mean = 3.43) since the necessary skills are readily available. Respondents' generally optimistic assessments of these three factors bode well for the country.

4.2 Botswana's Competitiveness and Determinants

The strength of the connection between the dependent variable (Botswana's Competitiveness) and the explanatory variables was assessed using the correlation method. The outcomes of the correlation matrix are shown in Table 3. The level of competitiveness in Botswana is proxied by the dependent variable.

Table (3): Botswana's Competitiveness and Determinants (correlations)

		B1	B2	B3	B5	B9	C6
B1	r	1	.656**	.544**	.599**	.659**	.524**
	Sig.		0.000	0.000	0.000	0.000	0.000
	N	88	88	88	88	88	88
B2	r	.656**	1	.551**	.244**	.666**	.345**
	Sig.	0.00		0.000	0.000	0.000	0.000
	N	88	88	88	88	88	88
B3	r	.544**	.551**	1	.363**	.751**	.323**
	Sig.	0.000	0.000	0.000	0.000	0.000	0.000
	N	88	88	88	88	88	88
B5	r	.599**	.244*	.363**	1	.377**	.591**
	Sig.	0.000	0.020	0.001		0.000	0.000
	N	88	88	88	88	88	88
B8	r	.524**	.345**	.323**	.591**	.399**	1
	Sig.	0.000	0.001	0.002		0.000	0.000
	N	88	88	88	88	88	88
B9	r	.659**	.666**	.751**	.377**	1	.399**
	Sig.	0.000		0.000	0.000	0.000	0.000
	N	88	88	88	88	88	88

Source: Author's calculations

NB: Two statements that were dropped from Table 3 because their factor metrics were below the threshold of 0.5 (Dimension reduction approach

Findings from Table 3 show that all the included determinants in the matrix are statistically significant and positively correlated with Botswana's competitiveness, at the 0.01 level. All the determinants have moderate strengths of association with Botswana's competitiveness. Licensing time falling below three months over the past five years ($r= 0.544$, $p< 0.01$); mining jurisdiction meeting timelines for licensing ($r= 0.659$, $p< 0.01$); mining tax incentives ($r= 0.599$, $p<0.01$); and availability of requisite skills ($r= 0.524$, $p<0.01$). These results corroborate those of Cordano and Zevallos (2020), who discovered that a country's mining competitiveness is tied to its geological potential and investment climate. Good policy, sufficient infrastructure, a ready supply of human and intellectual capital, social and political stability, the presence of clear and reliable institutions and regulations, an adequate tax regime, and specialized regulations for the mining sector are all factors that contribute to an attractive investment climate.

4.3 Impact of Independent Variables on Botswana's Competitiveness

Regression analysis was performed to see how the independent variables affected Botswana's competitiveness. Complementing the correlation analysis with regression was necessary because association does not imply causation. The results of the regression analysis are presented in Table (4).

Table (4): Impact of Independent Variables on Botswana's Competitiveness

Variables	Dependent Variable: Botswana's Mineral Exploration Competitiveness
Constant	0.53 [0.301]
B2	0.304*** (0.065)
B3	-0.003 (0.074)
B4	0.143*** (0.054)
B5	0.313*** (0.076)
B6	0.038* (0.063)
B7	0.184*** (0.058)
B8	0.048* (0.078)
B9	0.267*** (0.89)
N	88
R^2	0.69
Adj. R^2	0.684
F- stat.	5.22
DW stat.	1.83

Notes: Standard errors are in brackets. ***, **, and * represent statistical significance at 10%, 5%, and 1% respectively.
Source: Author's calculations.

Table (4) summarizes the predictive efficacy of the stepwise linear regression model employed in this research. As shown in Table 4, the model has a statistically significant predictive influence in predicting the competitiveness of mineral exploration investment in Botswana. Durban Watson statistic is between -2 and 2, showing that autocorrelation is not a problem in the study. The predictors as a whole account for 69.9 percent of the observed fluctuations in Botswana's competitiveness. Intangibles that influence competitiveness but aren't accounted for in the model account for the remaining 30.1%.

The results in Table 4 indicate that improved licensing time over the past five years impacts positively on Botswana's competitiveness and is statistically significant at the 0.001 level (β=0.380, $p<0.01$). A marginal improvement in licensing time would enhance the country's competitiveness by 0.380 magnitude. Equally, the impact of the usefulness of geological data is positive on the country's competitiveness and is statistically significant at the 0.01 level (β=0.172, $p<0.01$). Mining tax incentives also has a positive impact on the competitiveness and is statistically significant at the 0.01 level (β=0.316, $p<0.01$). Lastly, the effect of infrastructure availability on the country's competitiveness is statistically significant at the 0.01 level and is positive (β=0.221, $p<0.01$).

KPMG's (2019) conclusion that the right policy and regulatory framework, good governance, political stability, availability of a skilled workforce, availability and access to accurate geological data, and a competitive investment climate all affect the attractiveness of exploration investment is supported by the results. The above factors have a positive correlation with competitiveness and Botswana should seek to improve them. According to Fraser Institute (2020), the most alluring mining jurisdictions have a strong investment climate and mineral potential, placing them near the top of the rankings. The correct policy and regulatory framework, strong governance, political stability, availability of a competent workforce,

availability, and access to reliable geological data, and so on are the important factors influencing their ranking, and these are the ones they are working to improve.

5 Conclusion

In this article, Botswana's competitiveness was discussed to evaluate the effectiveness of the country's competitiveness in attracting exploration and mining investment. The study finds that Botswana is moderately effective in attracting exploration investment. The respondents moderately agree that Botswana's mineral policy improved; the licensing time for exploration activities went down to less than three months; the licensing processing time improved; the mining tax incentives and infrastructure availability improved, over the past 5 years.

The respondents agree that the geological data generated in the country is useful for exploration decisions, the political stability has helped to encourage exploration investment, and that availability of requisite skills has attracted more exploration over the past 5 years. The correlation findings showed that all the included determinants (independent variables) in the matrix were statistically significant and positively correlated with Botswana's competitiveness (dependent variable), at the 0.01 level. The regression findings indicated that all the model factors impact positively on the effectiveness of Botswana's competitiveness and are statistically significant at the 0.001 level. The findings also showed that the effectiveness of Botswana's competitiveness is influenced by the key elements of investment climate (policy and regulatory framework, governance, political stability, skills, tax, infrastructure, and geological data quality and access) in line with literature review findings.

The competitiveness of a mining jurisdiction will be enhanced by an improvement in any of the factors. Canada, Australia, and the United States are the mining territories that are the most effective at attracting mineral exploration investment. They excel in the recognized factors that influence the investment climate. Botswana is moderately successful in attracting exploratory investment and exploration and mining activity have decreased in recent years compared to other resource-rich nations. To promote competitiveness and raise the likelihood of mineral resource development, more effort is required to enhance the essential factors of the investment climate.

5.1 Recommendations

The primary purpose of Botswana's mining policy is to maximize the national economic gain from the exploitation of mineral resources. It is recommended that inclusive mineral policies be developed to promote an atmosphere of fair balance between diverse stakeholders. Thus, the creation of a reasonably acceptable environment for private sector investment, such as fair mining licensing times and procedures, and improving mining tax incentives, may result in an increase in both domestic and international investment. In addition, Botswana should prioritize excellent governance as a method of ensuring mining's economic success. Good governance through transparency in the rule of law within the mining sector, responsive mining government departments, enhanced equity and inclusion, and enhanced accountability and efficiency may result in political stability and increase in investments for the mining industry.

This study is limited by its research design (quantitative – with Likert style questions) and it would have been ideal to do a mixed methods study and include in depth semi structured interviews with senior government officials and mining managers. The study was carried out during the height of the COVID-19 pandemic whereby there were periodic lock downs, restriction of movement, closure of most businesses, and many health protocols to abide by. As a result, it was not possible to arrange interviews under the stressful conditions that prevailed at the time.

Future studies can focus on understanding the impact of mining activities that are geared towards sustainability (adding to their cost) and how these would impact attracting investment, because much of mining's history is associated with toxic processes.

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APPENDIX

Survey questionnaire

Respondent's code: …… Questionnaire Instructions:

Answer the questions as they relate to you. Check the box with the answer thatis most applicable to you and mark with an X. The researcher will protect the respondent's privacy, confidentiality anonymity.

Section A: Demographic Characteristics

The section was designed to establish the influence of demographic characteristics onthe study.

A1: Type of Sector Employed

With which type of sector are you employed in?

Exploration	
Mining	
Consulting	
Research	
Other (Please specify)	

A2: Gender Composition of Participant

What is your gender status?

Male		Female	

A3: Employment Position

What is your current position that you are employed in?

Exploration Manager	
Project manager	
Mining Manager	
Consultant	
Consulting Partner	
Research Manager	
Other (Please specify)	

A4: Age Grouping of Participant

Under which age grouping do you fall under?

20 years and less		40 to 49 years	
20 to 29 years		50 to 60 years	
30 to 39 years		60 years plus	

A5: Highest Educational Qualification of Participant

What is the highest level of qualification that you have obtained?

Form 5 or below	
Certificate	
Diploma	
Degree	
Master's degree	
Doctorate	

A6: Working Experience

What is your working experience in the mining sector?

2 years and less		11 to 15 years	
3 to 6 years		16 to 20 years	
7 to 10 years		20 plus years	

Section B: Competitiveness in Mineral Exploration Investment

Objective: The section was designed to evaluate the effectiveness of Botswana'scompetitiveness in mineral exploration investment.

1 = Strongly Disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly Agree

Item	Questions/Statements	1	2	3	4	5
B1	Botswana's minerals policy has improved over the past 5years.					
B2	The licensing time (time to get permit/ licence/EIA approval) has improved over the last 5 years.					
B3	A permit/ licence/EIA approval to conduct exploration activities took less than 3 months in the past 5 years					
B4	The mining jurisdiction has met its established timelines/milestones for permit/licence/EIA approval decisions throughout the permitting process in the past 5years.					
B5	The relevant institutions performed their roles with clarity and offered quality of service in the past 5 years.					
B6	Prior to deciding where to explore, all other factors being equal, I have had confidence that I will eventually be granted a permit/ licence/EIA approval in the past 5 years.					
B8	Prior to deciding where to explore, all other factors being equal, the level of political stability has encouraged exploration in Botswana in the past 5 years.					
B9	Over the past 5 years availability of infrastructure has encouraged exploration in Botswana.					
B10	Over the past 5 years the availability of requisite skills for exploration activities has positively influenced explorationdecisions.					