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Understanding the Interplay Between Industrial Mining Policy, Innovation, and Firm Business Performance

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Abstract−The relationship between industrial mining policy, innovation and firm business performance is the subject of this research paper. The purpose of the study is to explore how innovation can influence business performance and whether Indonesia has a role in changing global markets. The study adopts a cross-sectional design and uses both quantitative research methods as per positivist paradigm, as well qualitative approaches. The collected data is subjected to quantitative analysis using partial least squares structural equation modeling (PLS-SEM). The specific focus of this investigation centers around Indonesian mining firms possessing mining business permits (IUP), with a total sample size of 385 respondents who participated in the survey. The findings indicate all constructs and dimensions are categorized as substantial and have predictive relevance. This study also demonstrates that innovation acts as a mediator between the industrial mining policy and firm business performance, since the path coefficient of the indirect effect of IMP → IN → FBP (0.496) is higher than the direct effect of IMP → FBP (0.323). In sum, this research emphasizes the significance of innovation in enhancing the positive correlation between the industrial mining policy and firm business performance within the Indonesian mining sector. The lessons of this research have practical applications for policymakers and industry stakeholders. Not only do they offer information about how to make money in the Indonesian mining sector, but also findings that help develop viable economic solutions which can be sustained over time. This research can help change the direction of mining toward sustainability and profit, by making clearer just how much innovation effects performance. This paper fills gaps in the current literature by providing helpful insights into innovation and business performance among Indonesia's miners.

Keywords: Mining Policy; Firm Performance; Innovation; Indonesia; Sustainability; Profitability

1. INTRODUCTION

Recent changes in the Indonesian mining industry have been brought about mostly by the Mineral and Coal Law. This law UU No. 4/2009 is trying to add value through processing and refining minerals at home, stressing environmental protection and streamlining licensing (Baird & Monica Wihardja, 2010). This is crucial considering that UU No. 11/67, also known as the Basic Mining Regulation, provides vital support for foreign investment in mining activities carried out through association between foreign and Indonesian legal entities. This law has established a base for the development of mining in Indonesia.

Under the downstream policy, UU No. 3/2020 transfers control over mining mineral and coal from the district to the central government. The purpose of the this move is to reduce decision making and synchronized mining activities. UU No. 11/2020, also known as the Job Creation (omnibus law), seeks to add further impetus for economic growth and attract investment (Khairani & Arnetti, 2023). The goal of this law is to bring about more jobs and greater foreign or domestic investment by cutting red tape. It covers steps such as reducing requirements for acquiring business permits, relaxing procedures involved in getting land supplies, etc.

It is a challenge for mining companies imposed by the downstream policy implemented through the Mineral and Coal Law. Now they are no longer limited to the process of exporting raw products, but must further involve themselves in downstream processing such as building smelters (Pandyaswargo, Wibowo, Maghfiroh, Rezqita, & Onoda, 2021). With this policy, mining companies must innovate and adapt to keep afloat. On the one hand, it can provide greater value creation and create new jobs; on the other there are high costs (Schröder & Iwasaki, 2023). No wonder businesses are having to continually adjust their planned control and schedule.

Indonesia's mineral and coal laws are complex issues that companies must negotiate (Fernando, Illahi, Putra, & Gusri, 2023). Entailing such complexities, researchers seek to remedy these by drawing lessons from leading authorities on the laws regarding minerals and coal. This work it is hoped will help stakeholders formulate sustainable but profitable strategies. These findings were, of course, based on the specific Indonesian context and may not be directly transferred to other regions or periods. The study also gives possible biases arising from the industry's sample as well as problems with time. In fact, this research fills voids in the current literature. It provides important perspectives of the role that innovation plays in corporate productivity within Indonesia's mining industry. It can change the course of development for mining and steer it to sustainability, even profitability. Strictly speaking, this is a policy-information role (Prior, Giurco, Mudd, Mason, & Behrisch, 2012).

Indonesia’s mining industry is an integral part of its national economy, and after facing many obstacles it has proven remarkably resilient (Diprose, Kurniawan, Macdonald, & Winanti, 2022). The overall regulatory regime that the government has established would be seen as giving rise to this resilience. This model embraces licensing, environmental

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protection measures, working with local people and equitable sharing of revenues (Maponga & Musa, 2021), as well as promoting local content. These steps form a harmonious balance between mining and stakeholders.

The relationship between government policies and performance of firms in the mining industry is to a large extent decided by innovation (Leyva-De la Hiz & Bolívar-Ramos, 2022; Xia, Gao, Wei, & Ding, 2022). If mining companies accept creative means in dealing with the effects of government policy, they can turn a curse into an opportunity. It highlights the necessity of innovation in shaping industry and its ability to respond on shifting times.

On the world stage, the nickel market enabled Indonesia's mining sector to become a major force. There is currently a global shortage of nickel (Camba, 2021). On the other hand, forecasts show that Indonesia has already increased its own domestic capacity. It is a statement of Indonesia's ability to sway global markets, and reposition itself as an important player in the world of mining.

In addition to nickel, the coal industry also contributes revenues and general economic activity in Indonesia. Geopolitical factors affect coal industry dynamics (Li, Yang, Li, & Failler, 2021). One measure that Indonesia has taken to maintain energy stability is setting a reference coal price. While the coal industry could appear bleak in the short-term, as pressure to decarbonize from major economies like China, India and South Korea fuels Russia's offer of discount prices.

Energy and mineral resources occupy an important place in foreign investment for Indonesia (Y. Huang et al., 2020). But while the country, in general welcomes foreign investment; there are limits. The leading example concerns radioactive minerals. A particular aspect of legislation recently introduced, to assure economic sovereignty and to concentrate powers for mining policy in the hands of a single ministry was strengthening foreign ownership stakes in mines. Nonetheless, questions remain about local involvement and the incorporation of traditional wisdom in mining legislation. These factors provide a backdrop for ongoing conversations and discussions around governance in this industry sector that are still being held today.

Industrial mining policy plays a crucial role in firm business performance, with innovation acting as a mediating variable. Studies have shown that environmental, social and governance (ESG) performance significantly enhances innovation and sustainability performance in mining industries (Rajesh, 2020; Zhang, Loh, & Wu, 2020). Additionally, product innovation, corporate social responsibility, and environmental sustainability have been found to directly influence firm business performance (Canh, Liem, Thu, & Khuong, 2019). Innovation has also been shown to have a positive effect on firm value, with financial performance mediating this relationship (Beyhan Yasar, Sezen, & Karakadilar, 2019). Furthermore, technological turbulence has been found to positively impact innovation performance, with absorptive capacity mediating this relationship (D. Huang, Chen, Zhang, & Ye, 2018). These findings highlight the importance of industrial policies that promote product innovation, and process innovation in order to enhance firm business performance.

This study aims to explore the relationship between industrial mining policy, business performance, and innovation in the Indonesian mining industry. The specific objectives of the research are to determine the direct impact of mining policy on business performance, the direct effect of mining policy on innovation, the direct effect of innovation on business performance, and the indirect effect of innovation on the relationship between mining policy and business performance. The study intends to provide valuable insights for policymakers, mining industry stakeholders, and researchers regarding the significance of effective policy frameworks and innovation strategies in promoting business performance and sustainable development in the mining sector in Indonesia.

2. RESEARCH METHODS

2.1 Operational Definition

Growth and competitiveness are the key policies for, and strategies of, the mining industry. Industrial mining policy provides the basis for creating an industry by setting up a structure within which it is to operate. It deals with legal, financial and environmental problems of concern (Marimuthu, Sankaranarayanan, Ali, de Sousa Jabbour, & Karuppiah, 2021). The recent regulations emphasize global participation, competition intervention, tax preferences and infrastructure construction. The policies aim at striking a balance between the social and economic effects of industry on Wuyi County as well as satisfying modest needs for small-scale mining, emphasizing that quality public policy requires carefully considered coordination (Weldegiorgis, Dietsche, & Franks, 2021).

Another crucial aspect in the mining sector is business performance. Performance cannot be measured by revenue alone. Its indicators can also include profit, market share and operational efficiency; moreover targeting CSR will certainly generate a certain amount of attention for brand work because it is often perceived today as simply being about social responsibility or public service activities. Life in mining is competitive, relying on adaptability and an ability to keep one step ahead. Competitiveness is determined by price, quality, design control technology management and marketing (Christofi, Pereira, Vrontis, Tarba, & Thrassou, 2021; Riahi, Saikouk, Gunasekaran, & Badraoui, 2021). In the long run, it is only when firms put their unique resources to work and are innovative while keeping an eye on quality that they can have a real competitive advantage. They need also invest in skilled personnel. Business performance includes financial and nonfinancial indicators.

Innovation is an empowering force propelling the competitiveness and growth of mining. Two types of innovations are especially noteworthy, as the sector is constantly revamping its offerings and production methods (Calzada Olvera,

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2022; Moughari & Daim, 2023). Amongst other such activities, product innovation refines and upgrades mining products while process innovation enhances production methods. Making innovation truly productive requires a careful balance of change and stability. The quest for excellence By drawing on its flexibility and high standards, the real-estate industry can position itself to face a dynamic world.

2.2 Theoretical Framework

Mining offers Indonesia the opportunity for growth and self-sufficiency. Sound policies for mining keep the nation competitive, and help business prosper. Businesses move ahead with predictable regulations and incentives (J. Huang, Zhong, & Zhang, 2023). The incentives, such as tax benefits and research grants, lead to innovation efficiency; cost savings and market differentiation.

In mining, competitive advantage is particularly important and firm-specific resources and capabilities especially valuable. Mining licenses, land access, infrastructure and environmental considerations there are also policies that streamline operations and promote sustainability (Amuah, Tetteh, Boadu, & Nandomah, 2023). Improving efficiency, promoting sustainable practices and saving costs are just a few of the benefits to mining companies from such streamlined policies.

Based on Andersen (2021), the Resource-Based View (RBV) emphasizes that firm-specific resources are at the core of how a firm can attain competitive advantage. Innovation is encouraged by Indonesian mining policies which promote research and development (R&D) as well as technology transfer. Such policies promote innovative approaches and encourage mining enterprises to practice sustainable methods, raising overall efficiency.

Innovation offers huge advantages for Indonesian mining companies. It gives them a clear edge in the market, increases revenues and expands markets. And it also emphasizes sustainability. Through strict adherence to regulations and minimal environmental impact, innovation is the key towards long-term sustainability of mining (Amoah & Eweje, 2020; Brodny & Tutak, 2022). **Figure 1** illustates that the causal links between mining policies, innovation and firm performance are complex. Further research is needed to understand the relationship by using methodologies such as structural equation model construction.

Mineral and coal policies are an integral part of Indonesia's long-term strategy for growth and economic independence, so they should be dealt with comprehensively. The elements of the nation's mining policy include the IUP licensing mechanism and Minerba law (Fernando et al., 2023; Putra & MH, 2021). These policies, which stress resources inventory; management; utilization and conservation can provide the stage for mining companies to shine. These policies allow mining companies to use valuable resources, stimulate innovation and overcome policy changes. By doing so, they can maintain their long-term vitality and competitiveness.

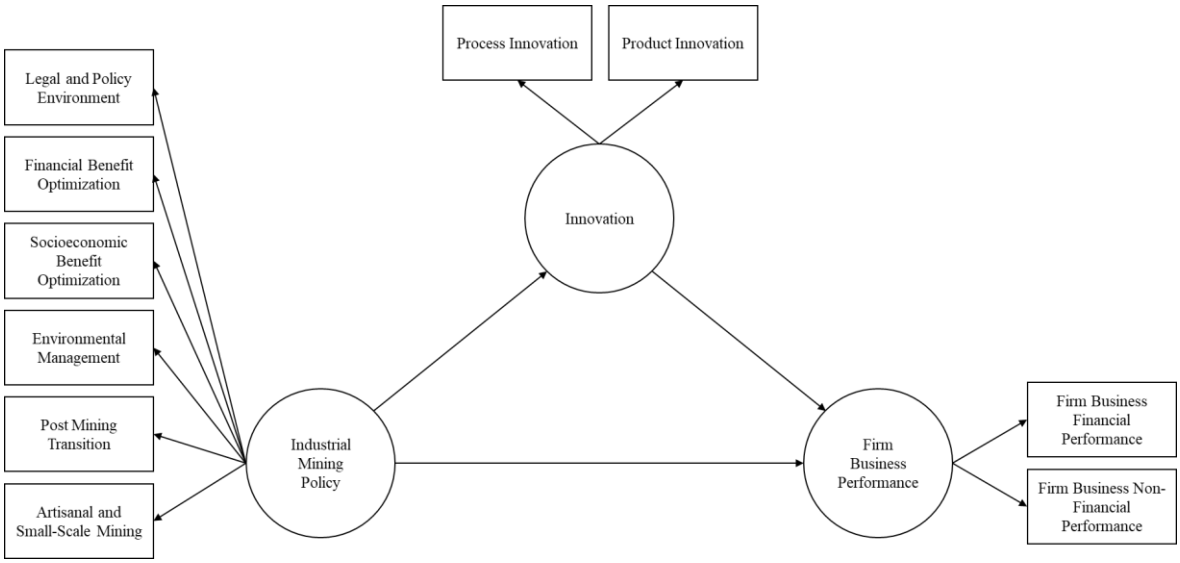

Figure 1. Theoretical Framework

2.3 Methodology

Research needs to be carried out in a careful and methodical manner, so as not only to be rigorous but also reliable. A clear research design acts as a guide for the study, requiring that steps be taken to reduce bias and enhance validity while considering ethical topics. Saunders' model for a research onion helps guide researchers through the layers of decision making from philosophies to methods. It is particularly helpful in business studies (Chen & Baptista Nunes, 2023).

Within the research design, positivism is a paradigm that emphasizes empirical evidence and objectivity. Fitting for business topics, this seeks to take a stand apart from the subject matter. Research methods can be grouped into three broad types-deductive, inductive and abductive. Each has its own characteristics. Deductive methods are aimed at

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hypotheses testing, while inductive methods develop new theories based on observed patterns (Haque, 2022). Abductive method accounts for unexpected phenomena, fitting in with positivism.

As types of research are considered, the distinction between quantitative and qualitative research is seen. As depicted in **Figure 2**, in practical applications, both can be integrated very well (Guan et al., 2021). Quantitative research consists of numerical data, usually accompanied by controlled methods with a probate sampling basis. It fits perfectly with positivism and deductive logic. Different types of research designs have been shown to be effective in business studies. The most popular approaches include the survey, case study and ethnography methods.

Additionally, time-based research is an important factor; cross-sectional and longitudinal studies are two options (Brauer, Sendatzki, & Proyer, 2022). Cross-sectional studies look at a specific moment, and longitudinal ones track changes over time (Doering, Suresh, & Krumwiede, 2020; Vogl, 2023). The choice depends on available resources, the amount of time involved and variable dynamics. Because Indonesia's mining industry is so dynamic and forward-looking, cross-sections are usually more appropriate.

A questionnaire survey can collect data efficiently, and analysis using different techniques is possible. Looking at trends and relationships by discerning profiles of respondents through the tool SPSS, descriptive statistics provide insights into group characteristics (Sallis, Gripsrud, Olsson, & Silkoset, 2021). This is particularly true for methods like PLS-SEM in which the normal distribution assumption can be relaxed when sample sizes are small or data do not pass normality tests (Momayez, Rasouli, Alimohammadirokni, & Rasoolimanesh, 2023). Business research is multifaceted in nature, and has elements of designing and carrying out a study. By scrupulously applying methods, philosophies and techniques researchers can check the validity and value of their research results.

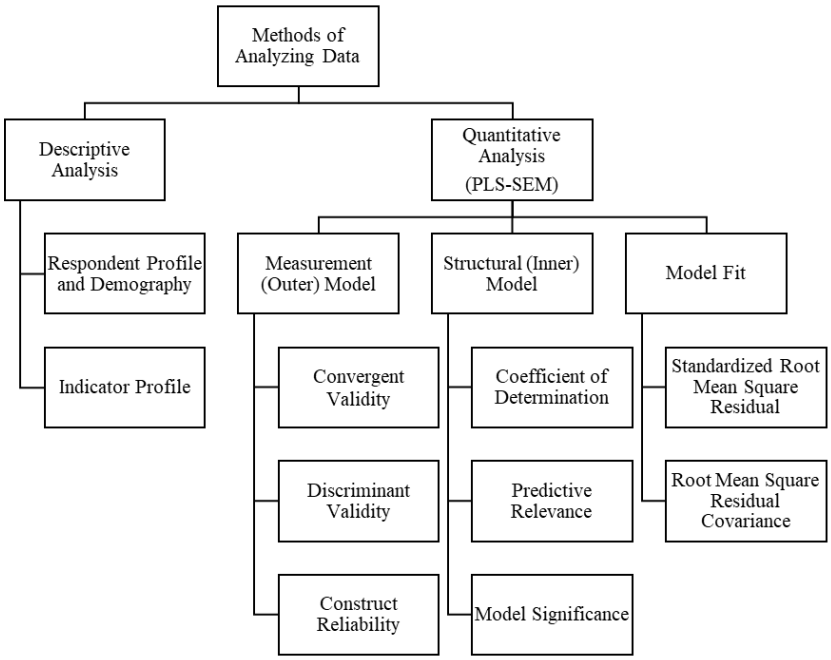

Figure 2. Data Analysis

Top and middle management is of central importance in Indonesian mining. These characters are important in their function and reflect the overall thoughts of mining companies across country (Karim, 2020). Managerial positions in shaping and evaluating policies for firms, as well as driving innovation, are seen by us to be particularly significant. A research project thus began looking into the relationship between mining policies and firm performance innovation formulation.

The Krejcie and Morgan table was used to determine the correct sample size for the study, so that it could have a firm statistical basis. Those of interest- middle and upper management in the mining industry totaled 2,875. A sample of 339 was felt to be sufficient for valid inferences. This was a pilot study of 65 respondents, followed by the main phase involving 385 participants. Together they encompassed 450 people from within the mining industry itself.

Choosing the research instruments was one of the keys to this study's success. In particular, it was important to use standardized or researcher-developed instruments that stress validity along both internal and external dimensions (Park, Solon, Dehghan-Chaleshtori, & Ghanbar, 2022). Its main instrument was a well-wrought questionnaire to explore the connections between mining policy, corporate success and innovation. The questionnaire inquired into areas such as industrial mining policy, innovation and firm business performance to explore the links between effective policies on one hand and real added-value growth on the other.

The purpose of the research was to increase study validity by collecting primary data from original sources, primarily through surveys. Local nuances were taken into account and respondent anonymity was guaranteed. The pilot

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study for the structural equation model (SEM) also served to further enhance the credibility of this research, as no discrepancies were found in any of its data and a sample collected well exceeded that required. Quantitative analysis of the data confirmed everything, revealing positive path coefficients and a good model fit. The initial questionnaire did not need to be revised in any way (Chatterjee & Bhattacharjee, 2020). Through focused sample selection, precise questionnaire formulation and tight analytical methods this research analyzes the current situation of Indonesia's mining industry in terms of policy, performance and innovation.

3. RESULTS AND DISCUSSION

3.1 Descriptive Analysis

Therefore, the section of a research paper that contains findings is exceedingly important. Without it there would be no indispensable outcomes or experimental data and implications could not existing at all. By using tables and charts to illustrate research positions, directions of development in thought, etc., it functions as a bridge between novel concepts for future research and strategic business planning. Particularly for enlightening research work and decision-making, this segment is crucial.

The truth about these findings, descriptive statistics are an essential tool for data analysis. These statistics give the basic qualities of datasets, leading to a deeper understanding of data's nature and relations (Koesten, Gregory, Groth, & Simperl, 2021). By contrast, univariate analysis uses a single variable: Measures statistical factors such as the mean, median and mode. In contrast, bivariate and multivariate analyses examine relations among several variables. These statistical analyses provide a full understanding of the numbers, and they play an important role in research decisions on what to analyze.

By way of illustration, there has recently been a study which looked at different sectors and businesses. The study found that most respondents came from companies with 6-10 years of operation, mostly national private companies targeting domestic markets. A large number of the participants were involved in mineral mining businesses, and their scales of operation typically ranged from 51 to 500 people. It was further pointed out in the study that firms with local owners were by far the most prominent group which engaged itself actively on foreign terms. But few of the respondents were from institutions of higher education.

In relation to the mining sector, this study gathered information from a multitude of indicators regarding operations in various fields including legal and policy issues; financial benefits such as revenue generated for local people (for example by way of royalties) or investment returns accruing to shareholders at home or abroad; human resource conditions active in-field sociological aspects, working environment and public health perspective (Ma, Men, Li, & Li, 2021). With detailed statistics for each indicator, this comprehensive dataset offers indispensable insights into the performance and optimizing capability of the mining industry. This integration of research findings and descriptive statistics results in a comprehensive tapestry of knowledge. Thoughtful decisions are attainable, while providing the foundation for further study.

3.2 Quantitative Analysis

By uniting confirmatory factor analysis and path analysis into a single methodology called structural equation modeling (SEM), this key statistical technique helps to discover causal relationships (Hair Jr et al., 2021). Its applications extend across numerous fields. Normally, the maximum likelihood method is used. However, it depends on assuming multivariate normality. On the other hand, with PLS becoming popular to fit inaccurately specified models. A comprehensive review, so its formative and reflective sides can be properly gathered together to make the most of SEM itself is recommended. It underlines the need for two-tier assessment of PLS models as shown in **Figure 3**.

Measurement (Outer) Model. The measurement model lies at the heart of SEM. It specifies the relationships between variables that are observed and concepts internal to them (latent). The make up of this model is realized through reflective and formative indicators. These factors consider random errors, systematic measurement biases as well as scientific deliberation in order to ensure the test's reliability and efficacy. Within the framework of traditional test theory, but not unique to it, convergent validity is often conceptualized as statistical correlation between results from differing tests measuring any single construct (concept). But this method is not without its problems--most notably, how to select different approaches and reduce variation in normal technique.

Loading factors are key. They help show the relationship between things and ideas. Gamil & Abd Rahman (2023) have stated that factors higher than 0.7 represent a strong relationship between variables and constructs. Validity, however, is determined by a number of factors--from the research environment and the kind of construct itself to elements like sample size and model fit. In this complex flood of validity, sometimes water must be thrown out with the bathwater. Algorithms like SmartPLS are needed for convergence validity at a level above 0.7.

Convergent validity in studies is also a point of view that can be seen from the Average Variance Extracted (AVE). Through examination of indicator loadings, it shows a construct's ability to account for variance. A transcendent 0.5-1.0 AVE, therefore, represents more inherent validity (Suh, 2023). As a result, AVE is still a valuable gauge for researchers who wish to estimate the verisimilitude of models. On the other hand is discriminant validity, basic for model validation. It studies an instrument's ability to distinguish between concepts by pitting the similarity each has with a variable against

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their similarity with its indicators. Cross-loadings are usually analyzed for items on their actual constructs against others. Nonetheless, a large load on the intended constructs strengthenses research reliability and validity (Waqar et al., 2023). On the issue of instrument precision, nothing causes more misconceptions than deficiencies in accuracy models. Two widely used criteria in the PLS-SEM continuum are Cronbach's Alpha and Composite Reliability. These instruments are used to test the strength of links and the validity of indicators. For exploratory studies, a threshold of 0.60 is considered adequate; for confirmatory research, one must reach at least 0.70 to satisfy people's rigorous thinking. It offers an intriguing story, with Cronbach's alpha values that vary from 0.860 to 0.977 and composite reliability scores that fluctuate from 0.903 to 0.979. Such figures demonstrate a sound basis of correlation and checks in measurements.

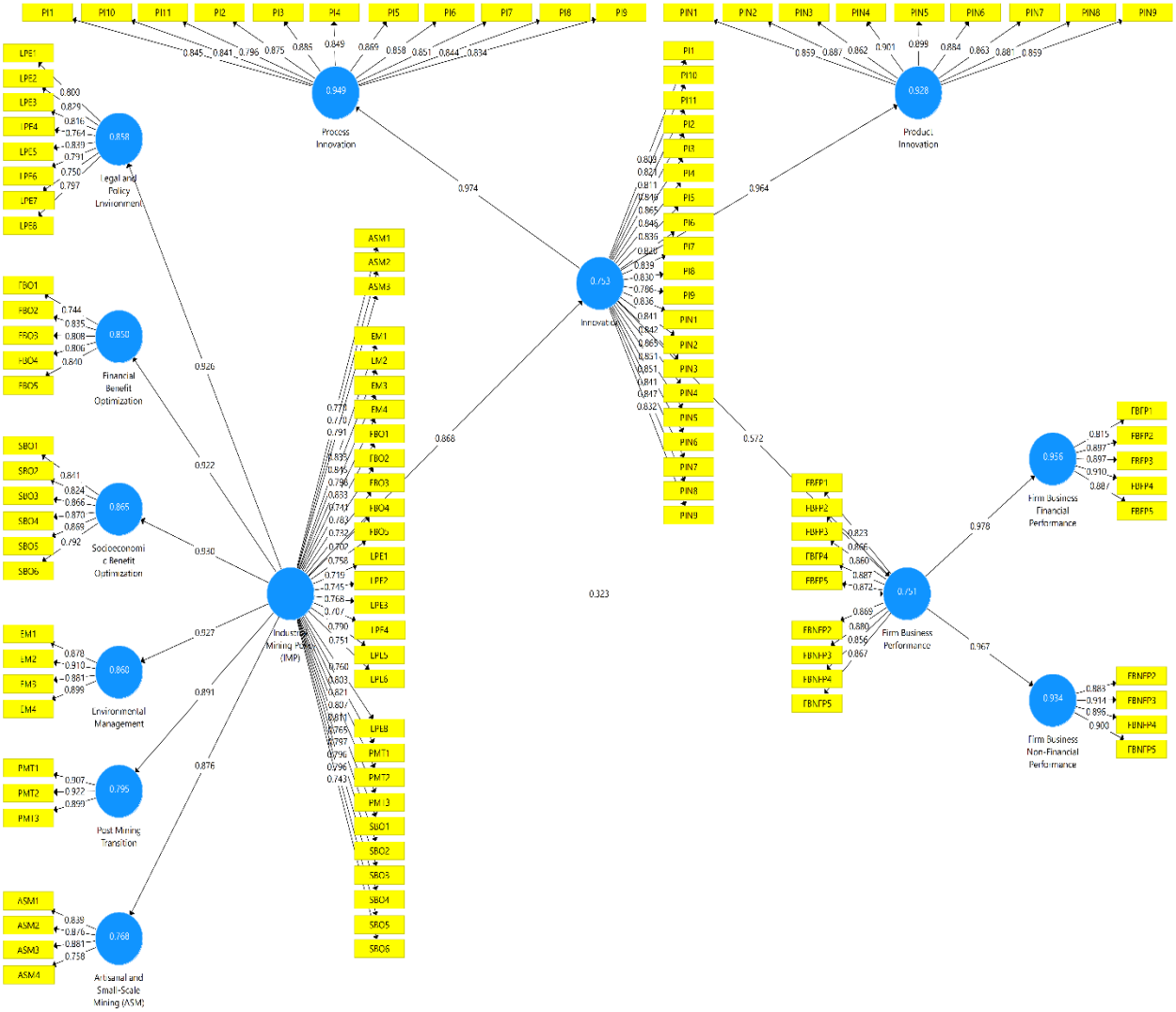

Figure 3. Outer loadings on the path model (after re-run)

Structural (Inner) Model. During the attempt to understand complex systems models for structure become an indispensable tool. They reveal exactly how this interaction comes about. The variables that depend on others are termed endogenous and those whose values forecast the latent features of the system are referred to as exogenous (Hussain, Maqbool, Hussain, & Ashfaq, 2022). One certain method for this, the Partial Least Squares (PLS) analysis, presents that structural model in that of a loop-free causal network. The quality of these models is primarily judged through two methods: testing and determination coefficients (non-parametric).

These determination coefficients spring from the R-squared (R2) and adjusted R-squared concepts. R2 is a measure of how well variables respond, with values from 0 to 1. To clarify its explanatory power, an R2 value of 0.75 shows serious explanatory power; for 0.5 stable and moderate, for 0.2 weak. Tweaking this measurement, Adjusted R2 accounts for error and the number of predictors to provide an even more accurate assessment. When examining PLS models, we see that path coefficients are standardized beta coefficients. False paths between pairs of variables can be assessed by using two tailed tests or resampling, and revised estimates provide support for causal connections among these variables in the PLS structural model.

The Stone-Geisser test particularly measures the predictive accuracy of models. This test, which was originally designed based on non-parametric methods (Buniya et al., 2023), estimates parameters and generates values from incomplete datasets that are used to make predictions. that applies the Q2 criterion, in which the efficiency of the model

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at recovering real-world data is reflected by its value. Predictive validity is an indicator for a model when this value exceeds zero. When the predictive power is high between 0.518 and 0.747 for different constructs, overall significance of the model becomes clearer. Some, like FBFP and FBNFP, take the lead in terms of influence. By comparison, others like LPE and FBO though not as significant, still mean something.

But another approach, bootstrapping. also enhances our understanding of how relationships between variables are gauged. By way of example, regression errors and the significance of PLS coefficients are estimated through methodology (Basco, Hair Jr, Ringle, & Sarstedt, 2022). One can see through this the impact of variables not only backed by R2, t-statistics and p-values but also related to personalities. As shown in **Table 1**, the IMP and FBP are found to have a positive statistical relationship with a t-statistic of 3.389 and p-value of 0.001 respectively. The next critical variable is innovation (IN). This relationship becomes strengthened, as evidenced by the remarkable t-statistic value and corresponding p-value.

Table 1. Path coefficient and specific indirect effect

Path	Original Sample	Sample Mean	Standard Deviation	t-statistic	p-value
IMP → IN	0.868	0.869	0.020	44.120	0.000
IN → FBP	0.572	0.579	0.113	5.044	0.000
IMP → FBP	0.323	0.316	0.095	3.389	0.001
IMP → IN → FBP	0.496	0.502	0.097	5.091	0.000

The dynamic link between mining policy, firm performance and innovation is critical. Data indeed support the hypothesis that innovation strengthens the relationship between mining policy and company performance. This link positively influenced one miner through improvement, and influences two miners negatively at this point. For that reason alone, innovation must be explicitly incorporated into mining policy. The resulting VAF value of 3.29 thus points to a semi-mediating role for innovation between the industrial mining policy and firm performance, with mediation implying an indirect relation. Yet the entirety of this mediation merits a more in-depth exploration. In conclusion, a journey through the structural models, determination coefficients and assessment methods first teases apart the variables. But it also explicitly conveys that innovation will ultimately decide which direction the industry takes in future.

Model Fit. Accurately measuring the fit of theoretical models is no trivial matter in PLS-SEM (Partial Least Squares Structural Equation Modeling), and so on. Two key ratios for measuring this fit are the Standardized Root Mean Square Residual (CRMR) and the rms covariance. MSE and RMS are both important in measuring how well a model corresponds to the data observed, with smaller values denoting better accuracy. Looking closer, the SRMR is a measure that compares empirical and implied correlation matrices. SRMR should be less than 0.08 to be regarded as a very good fit (Shi, DiStefano, Maydeu-Olivares, & Lee, 2022). In other words, in our evaluation (saturated and estimated models), SRMR values are all under 0.10. This fact underlines how well the SEM model is able to reflect those relationships.

However, rms theta is another essential part of PLS-SEM that measures model complexity. In it, predicted indicator values are juxtaposed with their observed counterparts (Ringle, Sarstedt, Mitchell, & Gudergan, 2020). Here the main objective is to minimize correlations among outer model residuals. Thus, in order to attain a snugger model fit, low rms theta values are sought. Basically, the evaluation and continuous monitoring of indicators such as SRMR and rms theta are crucial to helping SEM models remain stable and reflective of reality. Keeping these metrics under control, scholars and analysts can have faith in the accuracy of their models.

3.3 Discussion

But to understand these complex, intricate relationships and draw conclusions from them based on large datasets requires quantitative research. As an example of the application of this research, in terms of publishing a complete paper, the findings chapter lays out the statistical results compiled from quantitative data (Mulisa, 2022). An in-depth interpretation of this follows in the discussion chapter. In academic discourse (such as in a research paper), the discussion section does not just enumerate results but gives an in-depth analysis of the study's findings. It tests against previous research, highlights critical trends and admits weaknesses. Doing so illumines possible implications, usually pointing the way to future research. The paper ends with a summary of the central thesis which may also suggest further study or appropriate practical applications.

Examining Indonesia's industrial mining policy and the success of mining firms in greater detail, some interesting discoveries are made. It demonstrates that there is a direct relationship between mining policies and firm performance and innovation. This discovery offers data that is not only of great value to mining companies, it also is highly significant for the Indonesian government. Detailed and systematic analysis of a broad range of questionnaire data is an important feature in this quantitative field. That is, this kind of data can involve such things as demographics and indicator profiles, requiring descriptive and quantitative analytical methods to enable comprehensive analysis. The research itself used a structural equation model (SEM), employing 385 participants and adopting 60 indicators.

In order to consider in concrete terms the application of the quantitative approach, it's not just about data. The place where you have to start is understanding the structure and interrelationships of this data. It is achieved through a three-pronged method: measurement, structural, and fit models. Most importantly, scientific integrity is preserved and the research reproducible. Here it is that validity and reliability tests take their place. But it should be noted that research-related indicators are not always ideal; in this case some did not exactly square with the criteria set. The end result was

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that the model was reworked, four indicators were deleted and recalculations. The outcome? A high coefficient of determination was present in the structural model as well, which further testified to the importance of model paths.

Readers will be wondering, however, what the practical application of such a study would be. Consider the field of industrial mining policy, for instance. But, conventional wisdom would have it, the impact is direct. The results suggest otherwise. Interestingly, it was found that industrial mining policy indirectly affects firm performance. One important mediating factor is technology, that is innovation. This nuanced connection is born out of the SEM model, which adds strength to its research hypotheses through a rigorous methodology and comprehensive data analysis. It achieves the objectives set for research illuminating the complex interplay of industry policies, innovation and firm performance.

Indonesia's industrial mining policies have many repercussions. In addition to promoting mining, they bring high costs and operational difficulties. They also require a wider extension of environmental and social responsibilities (Lindman, Ranängen, & Kauppila, 2020). The idea behind the regulations is to achieve a balance between the disruptiveness of mining and requirements for sustainable development. To incentivize corporations but at the same time requiring them to apply intricate regulations according to sustainability goals, policies have been formulated by the government. The key to success seems to be responsible mining operations, community participation and technological improvements (Nem Singh & Camba, 2020). Global competition is a problem for the mining industry in Indonesia. With stringent environmental control, dealing with labor laws, sorting out taxation complexities and providing infrastructure remain urgent issues (Temenggung, Saputro, Rinaldi, & Pane, 2021). However, to enhance Indonesia's position in the world of mining requires ethical regulations, local participation, technological adoption and fair competition.

The Indonesian government has promised to promote innovation through collaborations and funding initiatives. For example, it is looking into environmentally-friendly mining techniques (Dharmayanti, Ismail, Hanifah, & Taqi, 2023). But evaluating the effectiveness of these policies is essential. Roadblocks that can hamper the industry's growth include limited access to technology, bureaucratic hurdles and unclear regulations. Overcoming these obstacles requires a stimulating atmosphere for innovation and sustainability. Research, joint efforts and precautionary measures are of great importance to the future success of mining. Policies promoting innovation, sustainability and transparent regulations can enhance efficiency, competitiveness and social acceptance (Brodny & Tutak, 2022).

4. CONCLUSION

The research study examined the relationship between mining policies, innovation, and company performance in Indonesia's mining industry. The study employed the resource-based view (RBV) and used structural equation modeling (SEM) to analyze the complex interactions between variables. The results showed that innovation plays a crucial role in mediating the relationship between policy and firm performance, with a positive impact. The study emphasized the need for well-designed and effectively implemented industrial policies to promote sustainability and improve the performance of mining firms. It also highlighted the lack of in-depth research on the effects of new mining laws on operational performance and emphasized the importance of further research in this area. The study recommended that Indonesia transform its mining sector through smart policy-making, technology dissemination, collaboration, and a customer-oriented approach. Strategic management experts and mining policy scholars should collaborate to develop policies and projects that align with the reality of the mining industry. The study concluded that regulations can positively influence innovation and company performance, and by embracing eco-friendly technologies, mining firms can demonstrate their commitment to sustainability while achieving better business outcomes. The findings underscored the importance of global policies that promote innovation, competitiveness, and cooperation to ensure a prosperous future for the mining industry while protecting the environment.

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