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Does intellectual capital have an impact on company risk and performance?: Effect of moderation political connection

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Abstract: This study looks at the effect of intellectual capital on firm performance and risk as well as the moderating effect of political connections. Companies in the current economic era are required to pay more attention to intangible resources. Intellectual capital is considered as the main intangible asset for companies used to create and use knowledge to increase firm value. The population in this study are non-financial companies listed on the Indonesia Stock Exchange in 2014-2021. The analysis method used in this study uses Moderated Regression Analysis. The study finds that the effect of intellectual capital has a significant effect on firm performance and risk, respectively. The moderating effect also affects the overall performance and market-side risk of the firm. Political connections make corporate decision-making inefficient. Future research can consider industry differences in the relationship of intellectual capital to firm performance and risk. This research has managerial implications, namely companies should consider increasing investment in the development and utilization of intellectual capital. Intellectual capital should be integrated into long-term corporate strategy. The limitations of this study are that the findings of this study are limited to developing countries and the need for more comprehensive measurements for intellectual capital.

Keywords: *Financial performance, Intellectual capital, Market performance, Market risk, Operational risk, Political connection.*

1. Introduction

Companies in the current economic era are required to pay more attention to intangible resources. Managing intangible assets as added value in the company will affect company performance (Widnyana et al., 2020). Intellectual capital is considered the main intangible asset for the company (Schiavone et al., 2014) which is used to create and use knowledge to increase company value (Petty and Guthrie, 2000). Companies must also prioritize the use of internal resources to achieve business success (Soewarno and Tjahjadi, 2020). This has an impact on changing the way business is managed and determining competitive strategies so that the company can survive. Not only to attract customers, most companies use technology to increase the efficiency of company activities and reduce costs incurred (Probohudono et al., 2021).

Previous research has shown that the value and ability of a company is often based on intangible assets, namely its intellectual capital (Berzkalne and Zelgalve, 2014; Huang and Huang, 2020). Intellectual capital has a positive impact on business progress, such as increasing brand equity and social networks (Liu and Jiang, 2020). In addition, intellectual capital provides various positive benefits for companies such as employee job satisfaction and retention (Longo and Mura, 2011), increasing

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business innovation (Adesina, 2019; Ornek and Ayas, 2015), increasing the relevance of accounting information (Hayati and Putra, 2015) and cost efficiency (Barrena-Martínez et al., 2020).

Intellectual capital is not only an important driver and resource in value creation and sustainable corporate development, but also a source of innovation and as a key to profit growth (Chowdhury et al., 2019; Schiavone et al., 2014). Value-Added Intellectual Coefficient (VAIC) model, a monetary-based intellectual capital measurement model capable of assessing the efficiency of intellectual capital across industries. Value-added is an indicator of business success. It indicates a company's ability to create value (Pulic, 2004). It also requires investment in resources, including salaries and interest on financial assets, dividends to investors, taxes to the state and investment in future development. Pulic's VAIC model has been widely used in research as well as in corporate practice to measure the efficiency of intellectual capital (Nadeem et al., 2018).

Financial performance is a description of the company's financial condition in a certain period. Competitive advantage is the main concern of managers, boards of directors and shareholders to achieve good financial performance (Weng et al., 2015). Financial performance has a very important role for the company itself and for stakeholders. Good financial performance means that the company has succeeded in utilizing all its resources well so as to generate profits for the company. Business companies in technological development and globalization focus more on intangible resources than tangible resources, making intangible assets significant in improving financial performance (Martins et al., 2016). Therefore, the management of intangible assets by companies can create added value that is useful in improving the company's financial performance (Andreeva and Garanina, 2016; Chowdhury et al., 2019; Dzenopoljac et al., 2017; Inkinen, 2015; Khalique et al., 2015; Nadeem, Dumay, et al., 2018; Nimtrakoon, 2015; Widnyana et al., 2020).

Kianto et al. (2014); Vishnu and Kumar Gupta (2014); Yang and Li (2009) concluded that intellectual capital has a positive effect on company performance. Different results found in research conducted by Xu and Liu (2020) show that intellectual capital through structural capital has no significant effect on company performance, this is because the relational capital factor seen from the R&D side has a large cost so that innovation capital tends to burden company performance and result in lower company profitability, reinforced by research by Weqar et al. (2021) Value Added Intellectual Coefficient (VAIC) has an insignificant relationship with company performance through company profitability and productivity. In addition, the application of intellectual capital in the company is expected to reduce the risk of falling stock prices (Probohudono et al., 2021). Dalwai and Salehi's research (2021) shows that intellectual capital has no relationship between company performance and risk as measured by bankruptcy using the Altman Z-score. Based on the description above, related to intellectual capital research on company risk, there is still little research conducted by researchers so that this study is interested in examining the effect of intellectual capital on company risk.

The existence of politically connected directors to add value as political connections will result in preferential treatment by the government, facilitating business growth. For example, politicians can help firms better navigate government bureaucracy (Agrawal and Knoeber, 2001). In such cases, collusion arising from a firm's political connections may increase efficiency, reducing information asymmetries between the government and business (e.g., regarding decisions to allocate contracts to certain firms). Thus, the work of politicians can increase investor confidence through various forms of economic benefits (Goldman et al., 2013). Political connections are expected to be of considerable value to firms. A politically connected firm enjoys resources that exceed the cost of establishing its political connections (Qian et al., 2011). Finally, directors may appoint director positions for politicians who bring one-time benefits to the company, using the directorships to reward the politicians concerned (Zhang and Truong, 2019).

The existence of political relations can also affect company performance. In accordance with Resource Dependence Theory (RDT) which explains that one way companies reduce the uncertainty of the external environment is by building political relationships (Hilman et al., 2009; Pfeffer and Salancik, 1978). It will provide the firm with a stronger resource base such as links to government, advisors,

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advice and experience. Previous literature (Mitchell and Joseph, 2010) has stated that political connections are valuable assets that firms have to minimize external risks, especially in developing countries. Research by Tarmizi & Brahmana (2022) also found that there is a relationship between political connections and sustainable company performance in oil and gas companies included in the Fortune Global 500 index.

The moderating variable used in this study is political connection. The use of political connection as a moderating variable is based on Resource Dependence Theory (RDT). It explains that one way companies reduce the uncertainty of the external environment is by building political relationships (Hilman et al., 2009; Pfeffer and Salancik, 1978). Research related to intellectual capital on financial performance and market performance has been widely conducted by previous researchers, while intellectual capital in companies on financial risk and market risk is still rarely done. This study aims to empirically prove the effect of intellectual capital on firm performance and risk with political connections as a moderating variable.

2. Literature Review

2.1. Intellectual Capital on Company Performance

Intellectual capital is generally understood as an important driver of increasing the competitiveness of companies (Xu and Liu, 2020). In the knowledge economy, intellectual capital is considered a more important contributor to the firm than tangible assets in improving the firm's competitiveness and value generation (Ahangar, 2011; Hsu and Chang, 2011; Jelínková and Jiřincová, 2015; St-Pierre and Audet, 2011). Based on the resource-based theory, the resources owned by each company are unique and cannot be replicated (Marr et al., 2003). Intellectual capital, a relatively new designation as a strategic resource, is related to securing competitive advantage and superior performance by generating value (Clarke et al., 2011; Marr et al., 2003). Therefore, it is important for companies to understand, identify, develop, and utilize intellectual capital efficiently, all of which can help companies gain competitive advantage.

Research by Salehi et al. (2014) and Clarke et al. (2011) found a significant positive relationship between firm performance and intellectual capital that will provide a competitive advantage. The existence of three components of intellectual capital consisting of human capital efficiency, structural capital efficiency, and capital employed efficiency is a good indicator for company shareholders because companies with good intellectual capital show that the company has used resources efficiently. The existence of good competencies, skills, and knowledge can reflect intellectual capital to improve financial performance (Lentjushenkova and Lapina, 2014; Zhou and Pan, 2018). On this basis, the hypothesis of this study is as follows:

H_1: Intellectual Capital has a positive effect on Financial Performance
H_2: Intellectual Capital has a positive effect on Market Performance

2.2. The Effect of Intellectual Capital on Corporate Risk

Chen et al. (2005) have confirmed that investors place a higher value on companies with better intellectual capital. Kim and Zhang, (2016) have also shown that the components of environmental control, information and communication and monitoring significantly reduce risk, while the risk assessment and control activity components do not show any relationship with the risk of falling stock prices. Ben-Nasr and Ghouma, (2018) explained that employee welfare as human capital efficiency (VAHU) is also a factor that contributes to the risk of falling stock prices. Further analysis shows that strong corporate governance mechanisms can reduce the risk of rising stock prices falling in less unionized firms and there is a negative impact of union strength on the risk of falling stock prices (Liao and Ouyang, 2017). Meanwhile, Anifowose et al. (2017) showed a positive relationship between overall intellectual capital and the market capitalization value of a company. Some of these studies imply that intellectual capital can reduce stock investment risk. The application of intellectual capital in the company is expected to reduce the risk of falling stock prices (Probohudono et al., 2021). On this basis, the hypothesis of this study is as follows:

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H_5: The effect of Intellectual Capital has a negative effect on Operational Risk
H_6: The effect of Intellectual Capital has a negative effect on Market Risk

2.3. Moderating Effect of Political Connection

Firms gain political connections by having officers and major shareholders enter politics or by attracting politicians to join the highest ranks of the firm (Zhang and Truong, 2019). The presence of political power in the company helps its officers and directors impact laws and regulations and provide access to needed information, which allows the company to anticipate economic changes and reduce uncertainty. On the other hand, entry into the business world allows politicians to receive financial support during election periods, essentially in the form of donations (Brogaard et al., 2015). Chaney et al., (2011) mentioned that political connections can affect the company's financial performance. Companies that have political connections can get financing guarantees from these political connections and get low pressure from external markets. In addition, companies can get protection from the government, get easy access to capital loans, low risk during tax audits, and also companies will get special rights from the government, for example during a financial crisis it is easy for companies to get bailouts from the government (Cheema et al., 2016; Kim and Zhang, 2016). In fact, Qian et al. (2011) prove that politically connected companies enjoy resources that exceed the cost of building their political connections, proving that politically connected companies enjoy resources that exceed the cost of building their political connections. On this basis, the hypothesis of this study is as follows:
H_5: Political Connection Moderates the Effect of Intellectual Capital on Financial Performance
H_6: Political Connection Moderates the Effect of Intellectual Capital on Market Performance
H_7: Political Connection Moderates the Effect of Intellectual Capital on Operational Risk.
H_8: Political Connection Moderates the Effect of Intellectual Capital on Market Risk.

3. Methodology

3.1. Population and Sample

The population in this study are non-financial companies listed on the Indonesia Stock Exchange in 2014-2021. The research sample is companies that publish annual reports and the data used in the study are available. The sampling technique used purposive sampling based on the consideration of companies listed on the IDX in the period 2013 - 2021, except for financial companies. This study has a time period of fifteen years, namely 2013-2021 in accordance with research (Fung, 2015), providing evidence that companies that have longer political connections tend to feel less impact from stock price losses than companies that only have political connections. Meanwhile, the reason outside financial companies is due to differences in business characteristics and performance calculations, with a total research sample of 664 samples.

3.2. Measurement

We use four dependent variables with financial performance proxies consisting of Tobins'Q and net profit margin (NPM) where Company performance is an important key to the success that managers create companies to maintain resources that have valuable, rare, difficult to imitate and well managed properties (Barney, 1991). Furthermore, we also look at risk with the proxy of company risk and market risk, financial-based risk using a measurement that is the standard deviation of profitability (D'Amato, 2021), while market-based risk uses the standard deviation of stock returns (Rosyida et al., 2015). Return and risk are two things that cannot be separated. An investment that has risk means that the investment will not provide a definite return. We use intellectual capital as an independent variable which is considered a more important contributor to the company than tangible assets in increasing the competitiveness of the company (Ahangar, 2011; Hsu et al., 2011; Jelínková et al., 2015; St-Pierre et al., 2011).

Intellectual capital measurement uses the Value-Added Intellectual Coefficient (VAIC) method. Value-Added Intellectual Coefficient consists of three efficiency components, namely capital employed

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efficiency (VACA), human capital efficiency (VAHU), and structural capital efficiency (STVA) (D'Amato, 2021; Probohudono et al., 2021; Soewarno et al., 2020; Weqar et al., 2021; Xu et al., 2020). The greater the VAIC value, the higher the company's efficiency level. If VAIC increases over time, the level of efficiency increases and the company creates more value and vice versa (Joshi et al., 2013).

This study uses a new perspective where political connection is seen as moderation, Political connection is determined if the director, commissioner, board of directors and audit committee, secretary or treasurer are included in one of the categories set by BI in BI regulation No. 12/3/PBI/2010, these categories are, (1). Head of State or Head of Government; (2). Deputy Head of State or Head of Government; (3). Minister-level officials; (4). Senior executives of State companies; (5). Directors of state-owned enterprises (SOEs); (6). Executives and heads of political parties; (7). Senior officials in the military and/or police; (8). Senior officials within the Supreme Court and the Attorney General's Office; (9). Officials appointed by Presidential Decree. Measurement of political connection using an index by taking all politicians in the company then dividing it by the number of members in the organizational structure (board). Based on research that has been conducted by previous researchers, it still tends to be using dummy variables, but for which the use of political index construction and indexes are still few (Ramly et al., 2020). We also add control variables to better explain the overall role of intellectual capital on firm performance and risk with moderation of political connection.

Table 1.
Variable measurement.

Variable	Measurement	References
Dependent variable		
Market performance	$\text{Tobin's Q} = \frac{\text{Market value of equity + Total debt}}{\text{Total assets}}$	(Ding et al., 2014; Maaloul et al., 2018; Pérez et al., 2015; Su & Fung, 2013)
Financial performance	$\textit{Return on Equity} = \frac{\text{Net Profit}}{\text{Equity}}$	(Ding et al., 2014; Maaloul et al., 2018; Nuryaman, 2015; Su & Fung, 2013)
Operational risk	$\sigma P_i = \frac{earnings\ before\ interest\ and\ tax\ \ (EBITDA)}{total\ assets}$	(D'Amato, 2021)
Market risk	$\sigma R_i = \sqrt{\sum_{i=1}^{n} \frac{[(R_{it} - \bar{R}_{it})]^2}{n-1}}$	(Rosyida & Mawardi, 2015)
Independent variable		

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Intellectual capital (*Value added intellectual coefficient* (VAIC)	VAIC = VACA + VAHU + STVA Stages: *capital employed efficiency* (VACA) Value added (VA) = revenue and all products and services sold in the market (OUT) - all company costs, except employee costs (IN) $\text{VACA} = \frac{\text{VA}}{\text{Total Assets} - \text{Intangible Assets (CE)}}$ *human capital efficiency* (VAHU) $\text{VAHU} = \frac{\text{VA}}{\text{salaries and employee benefits (HC)}}$ *structural capital efficiency* (STVA) $\text{STVA} = \frac{\text{SC}}{\text{VA}}$ SC = Value added (VA) - salaries and employee benefits (HC)	(D'Amato, 2021; Probohudono et al., 2021; Soewarno & Tjahjadi, 2020; Weqar et al., 2021; Xu & Liu, 2020)
Variable moderation		
Political connection	Measuring political connection using an index by taking all politicians in the company then dividing it by the number of members contained in the organizational structure (board).	(Ramly et al., 2020)
Variable control		
Company size (SIZE)	SIZE = Ln Total Aset	(Bliss & Gul, 2012; Ding et al., 2014; Fan et al., 2007; Maaloul et al., 2018; Pérez et al., 2015)
Leverage (LEV)	$\text{LEV} = \frac{\text{Total Debt}}{\text{Total Asset}}$	(Bliss dan Gul, 2012; Chen dkk., 2011; Li dkk., 2008; Maaloul dkk., 2018; Pérez dkk., 2015; Su dan Fung, 2013)
Tangible assets (TA)	$\text{TA} = \frac{\text{Tangible Asset}}{\text{Total Asset}}$	(Chukwu & Egbuhuzor, 2017; Mohamed Radzi et al., 2015; Zhu et al., 2022)
Current ratio (CR)	$\text{CR} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$	(Enekwe, 2015; Huberman, 1984; C.-S. Kim et al., 1998)
Book to market (BTM)	$\text{BTM} = \frac{(\text{Total Assets - Intangible Assets})}{\text{Market Value}}$	(Cordeiro da Cunha Araújo & André Veras Machado, 2018)
Sale grow (SGR)	$\text{SGR} = \frac{\text{Sales t - Sales t-1}}{\text{Sales t-1}}$	(Kouser et al., 2012)
Company age (AGE)	AGE = *Ln (Current Year - Year of Establishment)*	(Tripathy & Uzma, 2022)

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Research and Development (RnD)	R&D = *Ln (The natural logarithm of a firm's research and development expenses)*	(Bromiley et al., 2016; Coluccia et al., 2020; Fafaliou et al., 2022; Falk, 2012)

3.3. Estimation Method

The analysis method used in this study uses Moderated Regression Analysis (MRA). According to Gujarati and Porter (2009) and Aguinis (1995) to test the effect between the independent variable, the dependent variable and the moderating variable using multiple regression analysis to test the relationship between the independent and dependent variables in which there are reinforcing factors and Moderated Regression Analysis (MRA) or interaction test is a special application of linear multiple regression where the regression equation contains elements of interaction (multiplication of two or more independent variables). The stages in this study use a regression model framework and then proceed by adding moderating variables, as for the stages of the model as follows:

$$\text{TOBIN'S } Q_{i,t} = \alpha + \beta 1 \ln IC_{i,t} + \beta 2 SIZE_{i,t} + \beta 3 LEV_{i,t} + \beta 4 TA_{i,t} + \beta 5 \ln CR_{i,t} + \beta 6 BTM_{i,t} + \beta 7 SGR_{i,t} + \beta 8 AGE_{i,t} + \beta 9 PC_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$\ln ROE_{i,t} = \alpha + \beta 1 \ln IC_{i,t} + \beta 2 SIZE_{i,t} + \beta 3 LEV_{i,t} + \beta 4 TA_{i,t} + \beta 5 \ln CR_{i,t} + \beta 6 BTM_{i,t} + \beta 7 SGR_{i,t} + \beta 8 AGE_{i,t} + \beta 9 PC_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$\ln \sigma P_{i_t} = \alpha + \beta 1 \ln IC_{i,t} + \beta 2 SIZE_{i,t} + \beta 3 \ln R\&D_{i,t} + \beta 4 \ln BTM_{i,t} + \beta 5 AGE_{i,t} + \beta 6 PC_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$\ln \sigma R_{i_t} = \alpha + \beta 1 \ln IC_{i,t} + \beta 2 SIZE_{i,t} + \beta 3 \ln R\&D_{i,t} + \beta 4 \ln BTM_{i,t} + \beta 5 AGE_{i,t} + \beta 6 PC_{i,t} + \varepsilon_{i,t} \quad (4)$$

Then the intellectual capital variable is divided into three dimensions consisting of VACA, VAHU, STVA, namely:

$$\text{TOBIN'S } Q_{i,t} = \alpha + \beta 1 \ln VACA_{i,t} + \beta 2 \ln VAHU_{i,t} + \beta 3 \ln STVA_{i,t} + \beta 4 SIZE_{i,t} + \beta 5 LEV_{i,t} + \beta 6 R\&D_{i,t} + \beta 7 TA_{i,t} + \beta 8 \ln CR_{i,t} + \beta 9 \ln BTM_{i,t} + \beta 10 SGR_{i,t} + \beta 11 AGE_{i,t} + \beta 112 PC_{i,t} + \varepsilon_{i,t} \quad (1.1)$$

$$\ln ROE_{i,t} = \alpha + \beta 1 \ln VACA_{i,t} + \beta 2 \ln VAHU_{i,t} + \beta 3 \ln STVA_{i,t} + \beta 4 SIZE_{i,t} + \beta 5 LEV_{i,t} + \beta 6 R\&D_{i,t} + \beta 7 TA_{i,t} + \beta 8 \ln CR_{i,t} + \beta 9 \ln BTM_{i,t} + \beta 10 SGR_{i,t} + \beta 11 AGE_{i,t} + \beta 112 PC_{i,t} + \varepsilon_{i,t} \quad (2.1)$$

$$\ln \sigma P_{i_t} = \alpha + \beta 1 \ln VACA_{i,t} + \beta 2 \ln VAHU_{i,t} + \beta 3 \ln STVA_{i,t} + \beta 4 SIZE_{i,t} + \beta 5 R\&D_{i,t} + \beta 6 \ln BTM_{i,t} + \beta 7 AGE_{i,t} + \beta 8 PC_{i,t} + \varepsilon_{i,t} \quad (3.1)$$

$$\ln \sigma R_{i_t} = \alpha + \beta 1 \ln VACA_{i,t} + \beta 2 \ln VAHU_{i,t} + \beta 3 \ln STVA_{i,t} + \beta 4 SIZE_{i,t} + \beta 5 \ln R\&D_{i,t} + \beta 6 \ln BTM_{i,t} + \beta 7 AGE_{i,t} + \beta 8 PC_{i,t} + \varepsilon_{i,t} \quad (4.1)$$

Moderating regression analysis is used to test the moderating effect in a regression model. Moderating variables can also be tested using regression analysis (Aguinis, 1995; Park & Yi, 2022; Sekaran & Bougie, 2016). Political connection as moderating effect of intellectual capital on firm performance and risk.

$$\text{TOBIN'S } Q_{i,t} = \alpha + \beta 1 \ln IC_{i,t} * PC + \beta 2 SIZE_{i,t} + \beta 3 LEV_{i,t} + \beta 4 R\&D_{i,t} + \beta 5 TA_{i,t} + \beta 6 \ln CR_{i,t} + \beta 7 BTM_{i,t} + \beta 8 SGR_{i,t} + \beta 9 AGE_{i,t} + \varepsilon_{i,t} \quad (1.2)$$

$$\ln ROE_{i,t} = \alpha + \beta 1 \ln IC_{i,t} * PC + \beta 2 SIZE_{i,t} + \beta 3 LEV_{i,t} + \beta 4 R\&D_{i,t} + \beta 5 TA_{i,t} + \beta 6 \ln CR_{i,t} + \beta 7 BTM_{i,t} + \beta 8 SGR_{i,t} + \beta 9 AGE_{i,t} + \varepsilon_{i,t} \quad (2.2)$$

$$\ln \sigma P_{i_t} = \alpha + \beta 1 \ln IC_{i,t} * PC + \beta 2 SIZE_{i,t} + \beta 3 R\&D_{i,t} + \beta 4 BTM_{i,t} + \beta 5 AGE_{i,t} + \varepsilon_{i,t} \quad (3.2)$$

$$\ln \sigma R_{i_t} = \alpha + \beta 1 \ln IC_{i,t} * PC + \beta 2 SIZE_{i,t} + \beta 3 R\&D_{i,t} + \beta 4 BTM_{i,t} + \beta 5 AGE_{i,t} + \varepsilon_{i,t} \quad (4.2)$$

Where the dependent variable are TOBIN'S $Q_{i,t}$ is firms' market value and $NPM_{i,t}$ is firms' financial performance, σP_{i_t} is firm's operational risk, σR_{i_t} is firm's market risk of the current year.

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Table 2.
Descriptive Statistics of the variables for the firm.

Variable	Obs.	Mean	Std dev.	Min.	Max.
TOBINS'Q	3275	5.419729	124.0182927	0.2040	5737.0520
Scoring intellectual capital	3275	53.667803	202.3944904	-959.9340	6864.4610
Operasional risk	3275	0.826812	23.3004723	0.0004	1333.8212
Market risk	3275	0.727817	1.9706522	0.0000	52.6700
ROE	3275	-0.075909	6.4148115	-326.9210	135.9900
Index PCON (Z)	3275	0.047572	0.0941173	0.0000	0.5385

4. Result and Discussion

4.1. Descripte Statistics

The mean, standard deviation, median, minimum and maximum values of all variables are shown in Table 2. The descriptive statistics of the six variables provided give a fairly diverse picture of the distribution of the data. The mean of TOBINS'Q, which measures the relationship between the market value and book value of the company, is around 5.42, but with a very high standard deviation, indicating large variations in the data. INTELLECTUAL CAPITAL SCORING has an average of about 53.67 with a sizable standard deviation, reflecting the large variation in intellectual capital scoring. OPERATIONAL RISK and MARKET RISK have low averages of around 0.83 and 0.73 respectively, with standard deviations that are also relatively low, indicating more limited variation in operational risk and market risk. ROE has a slightly negative average (-326.921) with a significant standard deviation, indicating significant variation in ROE. Finally, the PCON INDEX (Z) has a mean of around 0.05 with a low standard deviation, indicating that the data tends to center around the mean with more limited variation. In addition, extreme minimum and maximum values on some variables indicate the presence of outliers or extreme data in the sample.

4.2. Diagnostic Test

The Diagnostic Test in this study uses a heteroscedasticity test which aims to test whether in the moderation regression model there is an inequality of variance from the residuals of one observation to another. If the variance of the residuals from one observation to another is constant, it is called homoscedasticity and if it is different, it is called heteroscedasticity. In the heteroscedasticity test results with the Glejser test Table 3 it can be seen that sig. > 0.05 then each independent variable on the dependent variable does not occur symptoms of heteroscedasticity.

Table 3.
Diagnostic test of the variables.

Variable dependent	Variable independent	Glejser sig.	VIF	du<DW<4-du
TOBINS Q (Y1)	Scoring intellectual capital (X)	0.809	1.000	1.89704<1.825<2.10296
	Indeks PCON (Z)	0.464	1.000	
ROE (Y2)	Scoring intellectual capital (X)	0.803	1.000	1.89704<1.967<2.10296
	InDEKS PCON (Z)	0.243	1.000	
Operasional risk (Y3)	Scoring intellectual capital (X)	0.881	1.000	1.89704<2.001<2.10296
	Indeks PCON (Z)	0.433	1.000	
Market risk (Y4)	Scoring intellectual capital (X)	0.714	1.000	1.89704<1.976<2.10296

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	Indeks PCON (Z)	0.237	1.000	

In the next stage, we use the multicollinearity test to see whether the variables used in this study are biased or vice versa, in the multicollinearity test results in Table 3, it can be seen that VIF <10, so each independent variable on the dependent variable does not occur multicollinearity symptoms so that the data is not biased. Finally, we use the autocorrelation test to evaluate whether a regression has a relationship between confounding deviations in period t, with confounding deviations in period t-1, namely before. From the observation of Table 3, it is found that the Durbin Watson value is more than dU, so each independent variable on the dependent variable does not have autocorrelation symptoms except for the Tobins'Q variable.

4.3. Impact of IC on Firm Performance and Risk Indicators

In answering the model formed in this study, before going to the Moderated Regression Analysis stage, regression is first carried out based on the model formed in which consists of Model (1), Model (2), Model (3), Model (4) listed in Table 4. Furthermore, the Intellectual Variables in this study are then broken down consisting of VACA, VAHU, STVA in accordance with the Econometric Model in Model (1.1), Model (2.1), Model (3.1), Model (4.1) in Table 5. It is obtained in Table 4 that in model (1) the average Tobin's Q is about 3.767, with high statistical significance. The lnIC variable has a significant negative impact on Tobin's Q, indicating that changes in intellectual capital are associated with changes in the market value of the company.

Furthermore, model (2) Average lnROE is about -6.917, with high statistical significance. The lnIC variable has a significant positive impact on lnROE, indicating that an increase in intellectual capital is associated with a increase in ROE. Model (3) The average lnOperating Risk is about -2.551, with high statistical significance. The variable lnIC has a significant negative impact on lnOperating Risk. Then model (4) Average lnMarket Risk is about -2.185, with high statistical significance (p-value = 0.001). The lnIC variable has an significant negative impact on lnMarket Risk. On intellectual capital broken down into VACA, VAHU, STVA based on Model (1.1), Model (2.1), Model (3.1), Model (4.1) in Table 5. It is found in Table 5 that model (1.1) VACA (Value Added Capital Assets) variable has a significant positive impact on Tobin's Q at the 10% significance level (p-value = 0.000), and STVA variables do not have a significant impact on Tobin's Q. Model (2.1) shows, VAHU have a significant negative impact on lnROE and instead STVA has a insignificant impact on lnROE. Model (3.1) shows VACA variables have a significant positive impact on lnOperational Risk and VAHU has significant negative impact. Model (4.1) shows that the VACA variable has a significant negative effect on lnMarket Risk while VAHU has a insignificant impact on lnMarket Risk, STVA has no significant impact on lnMarket Risk.

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Table 4.
Regression results of model (1), Model (2), Model (3), Model (4).

	Dependent											
	Tobins'Q			lnROE			lnOperational risk			InMarket risk		
Variable	Coefficient	T-statistic	Sig.	Coefficient	T-statistic	Sig.	Coefficient	T-statistic	Sig.	Coefficient	T-statistic	Sig.
(Constant)	3.767	6.744	0.000	-6.917	-14.280	0.000	-2.551	-2.213	0.028	-2.185	-3.830	0.000
Leverage (K 1)	0.844	13.740	0.000	0.124	2.563	0.010	0.022	2.760	0.006***	0.051	4.663	0.000***
Age (K 3)	-0.217	-4.294	0.000	0.190	4.421	0.000	-0.285	-2.474	0.014	-0.080	-1.385	0.168
SIZE (K 4)	-0.080	-1.754	0.079	0.288	7.314	0.000	-0.007	-.073	0.942	-0.054	-1.131	0.259
INDEKS PCON (Z)	0.092	0.266	0.790	-1.152	-3.935	0.000	0.546	.847	.398	0.918	2.989	003
TA (K6)	-0.944	-61.903	0.000	-0.070	-5.446	0.000	-	-	-	-	-	-
BTM (K7)	-0.003	-2.482	0.013	-0.034	-5.676	0.000	-0.058	-1.123	0.263	0.008	.291	0.000***
SGR (K8)	-0.002	-1.907	0.057	-0.004	-4.481	0.000	-	-	-	-	-	-
lnIC	-0.125	-2.918	0.004	0.115	3.081	0.002	-0.259	-2.218	0.028	-0.194	-3.462	0.001
lnCR	0.197	5.958	0.000	-0.100	-3.114	0.002	-0.064	-1.036	0.300	-0.149	-2.432	0.772
R&D	-	-	-	-	-	-	-0.049	-0.714	0.476	0.048	1.444	0.150

Note: ****, **, * indicate the significance of the coefficients at the 1%, 5%, 10% levels, respectively.

Table 5.
Regression results of model (1.1), Model (2.1), Model (3.1), Model (4.1).

	Dependent											
	Tobins'Q			lnROE			lnOperational risk			InMarket risk		
Variable	Coefficient	T-statistic	Sig.	Coefficient	T-statistic	Sig.	Coefficient	T-statistic	Sig.	Coefficient	T-statistic	Sig.
(Constant)	4.249	6.459	0.000	-7.776	-14.877	0.000	-1.133	-3.231	0.001	-1.514	-2.374	0.019
VACA	0.185	4.949	0.000	0.370	12.083	0.000	0.043	2.079	0.038	0.019	3.850	0.000***
VAHU	-0.156	-3.911	0.000	-0.077	-2.441	0.015	-0.048	-2.254	0.024	6.448E-5	0.621	0.535
STVA	-0.166	-.741	0.459	-0.208	-1.179	0.238	-0.233	-1.974	0.048	0.142	1.906	0.058**
SIZE	0.665	5.573	0.000	0.401	4.149	0.000	-0.185	-6.613	0.000	-0.140	-2.584	0.010
LEVERAGE	-0.359	-6.130	0.000	0.001	0.017	0.987	0.466	8.157	0.000	-0.173	-1.105	0.270
TA	-.0123	-2.304	0.021	0.406	9.721	0.000	-0.081	-0.690	0.490	-0.585	-2.390	0.018
CR	0.059	0.309	0.757	0.160	1.089	0.276	0.234	1.487	0.137	-0.858	-3.135	0.002
BTM	-0.005	-3.230	0.001	-0.025	-4.130	0.000	-0.077	-6.626	0.000***	-0.022	-0.803	0.423
SGR	-0.003	-0.409	0.683	-0.001	-0.260	0.795	0.009	2.502	0.012	-0.158	-1.630	0.105

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AGE	0.141	3.392	0.001	-0.035	-0.934	0.350	0.079	3.048	0.003***	0.059	0.937	0.350
Indeks PCON	31.207	9.165	0.000	8.797	3.856	0.000	-0.246	-1.225	0.221	0.684	2.227	0.027
R&D							-1.267	-.704	0.482	-0.010	-0.531	0.596

Note: ****, **, * indicate the significance of the coefficients at the 1%, 5%, 10% levels, respectively.

Table 6.
Results of moderation regression model (1.2), Model (2.2), Model (3.2), Model (4.2).

	Dependent											
	Tobins'Q			**lnROE**			**lnOperational risk**			**lnMarket risk**		
Variabel	**Coefficient**	**T-statistic**	**Sig.**	**Coefficient**	**T-statistic**	**Sig.**	**Coefficient**	**T-statistic**	**Sig.**	**Coefficient**	**T-statistic**	**Sig.**
(Constant)	2.995	3.862	0.000	-6.013	-12.916	0.000	0.035	0.116	0.907	-1.370	-8.348	0.000
Leverage (K1)	1.151	1519.407	0.000	-0.001	-1.779	0.075						
Age (K 3)	-0.304	-4.180	0.000	0.142	3.282	0.001	-0.028	-0.955	0.340	-0.024	-1.512	0.131
SIZE (K 4)	-0.052	-0.821	0.412	0.240	6.339	0.000	-0.278	-11.183	0.000	-0.169	-12.763	0.000
TA (K6)	-0.619	-81.134	0.000	-0.005	-1.208	0.227	-	-	-			
BTM (K7)	-0.006	-2.803	0.005	-0.029	-4.862	0.000	0.001	1.808	0.071	0.001	1.538	0.124
SGR (K8)	-0.003	-1.547	0.122	-0.003	-3.412	0.001						
lnCR	0.429	10.069	0.000	-0.120	-4.244	0.000	-	-	-			
RDI (K5)	31.656	6.716	0.000	8.975	3.677	0.000	-1.118	-0.587	0.557	-1.994	-2.124	0.034
moderasi	-0.011	-0.371	0.710	0.009	0.565	0.572	0.009	0.795	0.427	0.019	2.257	0.024

Note: ****, **, * indicate the significance of the coefficients at the 1%, 5%, 10% levels, respectively.

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4.4. Moderation Effect

In the last stage we include the moderating effect of political connection on intellectual capital on firm performance and risk respectively in Table 6, consisting of model (1.2), model (2.2), model (3.2), model (4.2). The moderation effect findings result in a negative and insignificant relationship between intellectual capital and Tobins'q moderated by political connections presented in model (1.2). Then, in model (2.2) the moderation effect findings produce a positive and insignificant relationship between intellectual capital and lnROE moderated by political connections. Furthermore, the moderating effect of political connection does not affect the relationship between intellectual capital and operational risk listed in model (3.2). Surprisingly, model (4.2) yields a positive moderation finding by political connections affecting the relationship between intellectual capital and market risk.

Intellectual Capital has a positive and significant effect on financial performance, with a coefficient of 0.115 and a P-Value of 0.002 <0.05. This means that the higher the intellectual capital variable, the higher the financial performance. The findings in this study are in line with Yilmaz et al. (2018) which states that intellectual capital is inversely correlated with return on equity due to an indication that the efficiency in proportion of value added calculated through property, plant and equipment (PP&E) costs causes a positive effect on net income. So there is a inline between intellectual capital and efficiency costs incurred in terms of productivity and innovation (Skhvediani et al., 2022, 2023). Intellectual Capital has a negative and significant effect on market performance, with a coefficient of -0.125 and a P-Value of 0.004 <0.05.

This means that the higher the intellectual capital variable will reduce market performance. The findings in this study corroborate research (Madyan & Fikir, 2019) which reveals that the market performance of a company is determined based on the value of shares in the market, investors do not consider aspects of human resources as a comparative advantage of the company in making investment decisions. In line with the findings of Dharni et al. (2022) in pharmaceutical sector companies listed on the Indian Stock Exchange there is a significant negative trend between structural capital and market performance, the phenomenon is assumed by the study as a strategic shift on the part of pharmaceutical sector companies to use market performance through quantitative information proxies rather than qualitative information to communicate with investors and other stakeholders seen based on a significant growth trend in R&D intensity. The findings of Smriti et al. (2018) also revealed a negative relationship between VAIC and company performance in terms of market value indicating that investors are still reluctant to invest in Human Resources assets, VAIC which has a negative effect indicates that investors fail to explore and recognize the importance of human resources in a company as an important part of increasing company value.

Intellectual Capital has a negative and significant effect on operational risk, with a coefficient of -0.259 and a P-Value of 0.028 <0.05. This means that the higher the intellectual capital variable, will reduce the operational risk. This research is in line with the research of Dalwai et al. (2021) which states that operational risk is closely related to the risk of bankruptcy of the company, so it needs a strategic approach, the results of this study indicate that the higher the VAIC in non-financial sector companies listed on the Oman Stock Exchange in 2015-2019, the higher the Z-Score or risk of bankruptcy that occurs, this is because non-financial companies have a tendency to operate using a strategy of analyzing and seeing prospectors who are financially healthier, causing high risk-taking behavior as well. Intellectual Capital has a negative and significant effect on market risk, with a coefficient of -0.194 and a P-Value of 0.001 <0.05. This means that the higher the intellectual capital variable, will reduce the risk of market risk.

Albertini et al. (2021) states that the importance of the interconnectedness of the forming components of intellectual capital, the results of this study highlight that companies in creating value depend on a combination of intellectual capital components, market risk is closely related to intellectual capital capabilities seen in terms of digital capital and environmental capital, where companies invest in the knowledge of their employees to increase knowledge related to digital knowledge (data, cloud, platform, information, analytics, intelligence) and the ability to use different channels (social media,

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smartphones, customer data). In these two categories, there tends to be high risk activities due to the relatively new sector with high uncertainty, so investors need to conduct further studies and analysis related to uncertainty whether they can benefit from higher returns or vice versa, resulting in increased market risk.

The findings of the moderating effect of Political Connection moderate the effect of intellectual capital on market risk, with a coefficient of 0.019 and a P-Value of 0.024 <0.05. So that moderation of political connection on financial performance is included in the grouping of pure moderators. The findings in this research are in line with Harymawan et al. (2019) who found that the moderating effect of political connection on financial performance can be used as potential in companies to improve their capabilities and performance. Furthermore, Ahmad et al. (2022) found that if political connections are associated with civilians as a non-military entity, it has a tendency to be less stable in terms of political connections, therefore it will reduce financial performance and increase business risk and result in higher audit fees. Political Connection moderates the effect of intellectual capital on financial performance, with a coefficient of -0.485 and a P-Value of 0.000 <0.05. So that moderation of political connection on market performance is included in the grouping of quasi moderators.

From a corporate governance perspective, according to Al-dhamari et al. (2015) found that political connections in companies (political connected firms) have a bad influence on market performance, this is because the strength of corporate governance and prospects is formed through political goals that must follow the government, so it is rigid and must comply with the government. As a result, asset accumulation along with a weak corporate governance system will motivate politically connected managers to commit waste for political goal activities (political agenda). Reinforced by sustainability research from Al-dhamari et al. (2020) the tendency of political connections will obscure earnings information in connection with investing company resources in these political activities or agendas. Political Connection does not moderate the effect of intellectual capital on operational risk, with a coefficient of -0.008 and a P-Value of 0.443> 0.05.

So that there is no moderation of political connection on operational risk included in the grouping of moderator predictors. this finding reinforces the findings of Y. Chen et al. (2020) which states that whether or not there is a political connection, the company will continue to operate following the standardization and corporate culture that has been built, the risk will still exist and be attached to the company's operational level. J. Chen et al. (2019) added that whether or not there is a political connection, the company will still have to comply with regulatory instruments set by the government such as tax policies, operating licenses, and industry operating standards. Political Connection moderates the effect of intellectual capital on market risk, with a coefficient of 0.103 and a P-Value of 0.023 <0.05. So that moderation of political connection on market performance is included in the grouping of quasi moderators.

The positive moderation of political connection on market risk is corroborated by the findings of the research of Joni et al. (2020) which found that politically connected companies improve their performance after they establish relationships with politicians, this is because politically connected companies are associated with higher levels of risk, such as easy access to long-term debt funding. Then, from the perspective of political connections, Joni et al. (2023) added that companies with politically connected directors and supervisory boards make inefficient investment decisions, politically connected companies through supervisory boards tend to invest in projects that are not profitable due to political issues. So that it increases the association with higher market risk from the investor's perspective.

5. Conclusion

This study produces new findings by adding moderating effects to each relationship of intellectual capital to firm performance and risk, future studies may consider developing a more comprehensive measurement for intellectual capital. This study may have used components such as human, structural, and relational capital. Furthermore, this study measured the effect of intellectual capital on firm performance and risk in the context of political connections in developing countries, so future studies

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may compare with diverse political systems in various countries. Related to the results of this study, it can be considered the effect of industry differences in the relationship of intellectual capital to firm performance and risk and seen in the context of political connections. Finally, suggestions for managerial firms should consider increasing investment in the development and utilization of intellectual capital. This may include employee training and development, effective knowledge management, and the development of innovations that can increase overall firm value. Risks related to political connections should be managed carefully.

Company management should understand the potential consequences of political involvement. Entities need to ensure that political connections do not lead to corrupt practices or conflicts of interest that can harm the company. Intellectual capital should be integrated into the overall corporate strategy. This may mean identifying how intellectual capital can support the achievement of long-term business objectives and how it relates to politics and regulation. The adoption of a continuous performance measurement and monitoring system is essential. This enables management to identify the extent to which intellectual capital and political connections affect company performance and risk, and to take corrective action if necessary. Company management should encourage cross-functional collaboration in managing intellectual capital and political connections. This can help in maximizing the benefits of internal and external knowledge, as well as mitigating the risks associated with politics.

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