


**WORKING CAPITAL MANAGEMENT AND PERFORMANCE OF
TELECOMMUNICATION COMPANIES IN ASEAN-4: THE ROLE OF FINANCIAL
DEVELOPMENT**

Taufik Urachmansyah^A, Noer Azam Achسانی^B, Trias Andati^C



ARTICLE INFO	ABSTRACT
<p>Article history:</p> <p>Received 15 May 2023</p> <p>Accepted 09 August 2023</p>	<p>Purpose: The research is designed to comprehensively analyze the influence of internal factors (working capital) and external (financial development) on the probability of telecommunication companies in ASEAN-4.</p> <p>Theoretical framework: Managing Working capital is concerns about efficiency and proportion of investment in current assets and short-term financing to see the level of profitability and risk of the company that is a trade-off.</p> <p>Design/Methodology/Approach: This study uses panel data regression analysis using secondary data from annual financial statements of telecommunications companies in ASEAN-4 from 2012-2021.</p> <p>Findings: Net Trade Cycle (NTC) positively affects long-term profitability (Tobin's Q), Average Payable Period to Sales (APPS) and Working Capital Financial Policy (WCFP) affect short-term profitability (ROA) and long-term profitability (Tobin's Q). Financial Development (FD) moderates the relationship of managing working capital (management and policy) to short-term performance (ROA) and long-term performance (Tobin'sQ).</p> <p>Research, practical & social implications: Management and investors of telecommunication companies in ASEAN-4 need to consider internal factors such as working capital management and external factors such as financial development to improve company performance.</p> <p>Originality/Value: This study is the first to analyze the influence of Financial Development in managing working capital for telecommunication companies in ASEAN-4.</p>
<p>Keywords:</p> <p>Working Capital; Financial Development; Profitability; Telecommunication.</p> <div data-bbox="172 987 480 1234" style="text-align: center;">  </div>	<p>Doi: https://doi.org/10.26668/businessreview/2023.v8i8.2843</p>

**GESTÃO DO CAPITAL DE GIRO E DESEMPENHO DAS EMPRESAS DE TELECOMUNICAÇÕES
NA ASEAN-4: O PAPEL DO DESENVOLVIMENTO FINANCEIRO**

RESUMO

Objetivo: A pesquisa é projetada para analisar de forma abrangente a influência de fatores internos (capital de giro) e externos (desenvolvimento financeiro) na probabilidade de empresas de telecomunicações na ASEAN-4.

Quadro teórico: A gestão do fundo de manuseio é uma preocupação com a eficiência e a proporção do investimento em ativos correntes e financiamento a curto prazo para ver o nível de rentabilidade e risco da empresa que é um trade-off.

Projeto/Metodologia/Abordagem: Este estudo utiliza a análise de regressão de dados do painel utilizando dados secundários das demonstrações financeiras anuais das empresas de telecomunicações na ASEAN-4 de 2012-2021.

^A Master in Management Finance and Business. School of Business, IPB University. Bogor, Indonesia.

E-mail: taufik_urachmansyah@yahoo.com Orcid: <https://orcid.org/0009-0006-3192-4742>

^B Professor of Economics. School of Business, IPB University. Bogor, Indonesia.

E-mail: achsani@yahoo.com Orcid: <https://orcid.org/0000-0002-1478-8586>

^C PhD. School of Business, IPB University. Bogor, Indonesia. E-mail: trias_andati@yahoo.com

Orcid: <https://orcid.org/0000-0002-5335-2451>

Constatações: O ciclo de comércio líquido (NTC) afeta positivamente a rentabilidade a longo prazo (Q de Tobin), o período médio a pagar para vendas (APPS) e a política financeira de capital de exploração (WCFP) afetam a rentabilidade a curto prazo (ROA) e a rentabilidade a longo prazo (Q de Tobin). Desenvolvimento Financeiro (FD) modera a relação de gestão de capital de trabalho (gestão e política) para desempenho a curto prazo (ROA) e desempenho a longo prazo (Tobin'sQ).

Investigação, implicações práticas e sociais: A gestão e os investidores de empresas de telecomunicações na ASEAN-4 devem ter em conta fatores internos, como a gestão do capital de exploração, e fatores externos, como o desenvolvimento financeiro, para melhorar o desempenho da empresa.

Originalidade/Valor: Este estudo é o primeiro a analisar a influência do Desenvolvimento Financeiro na gestão do capital de giro das empresas de telecomunicações na ASEAN-4.

Palavras-chave: Capital de Giro, Desenvolvimento Financeiro, Rentabilidade, Telecomunicações.

GESTIÓN DEL CAPITAL CIRCULANTE Y RENDIMIENTO DE LAS EMPRESAS DE TELECOMUNICACIONES DE LA ASEAN-4: EL PAPEL DEL DESARROLLO FINANCIERO

RESUMEN

Objetivo: La investigación está diseñada para analizar de forma exhaustiva la influencia de factores internos (capital de trabajo) y externos (desarrollo financiero) sobre la probabilidad de las empresas de telecomunicaciones en ASEAN-4.

Marco teórico: La gestión del capital de trabajo es una preocupación sobre la eficiencia y la proporción de la inversión en activos corrientes y financiación a corto plazo para ver el nivel de rentabilidad y el riesgo de la empresa que es una compensación.

Diseño/Metodología/Enfoque: Este estudio utiliza análisis de regresión de datos de panel utilizando datos secundarios de los estados financieros anuales de las empresas de telecomunicaciones en ASEAN-4 de 2012-2021.

Hallazgos: El Ciclo Neto de Comercio (CNT) afecta positivamente la rentabilidad a largo plazo (Q de Tobin), el Período Medio Pagadero a Ventas (APPS) y la Política Financiera de Capital de Trabajo (PMCC) afectan la rentabilidad a corto plazo (ROA) y la rentabilidad a largo plazo (Q de Tobin). Desarrollo Financiero (DF) modera la relación de la gestión del capital circulante (gestión y política) con el desempeño a corto plazo (ROA) y el desempeño a largo plazo (Tobin'sQ).

Investigación, implicaciones prácticas y sociales: La dirección y los inversores de las empresas de telecomunicaciones en ASEAN-4 necesitan considerar factores internos como la gestión del capital de trabajo y factores externos como el desarrollo financiero para mejorar el rendimiento de la empresa.

Originalidad/Valor: Este estudio es el primero en analizar la influencia del Desarrollo Financiero en la gestión del capital de trabajo de las empresas de telecomunicaciones en ASEAN-4.

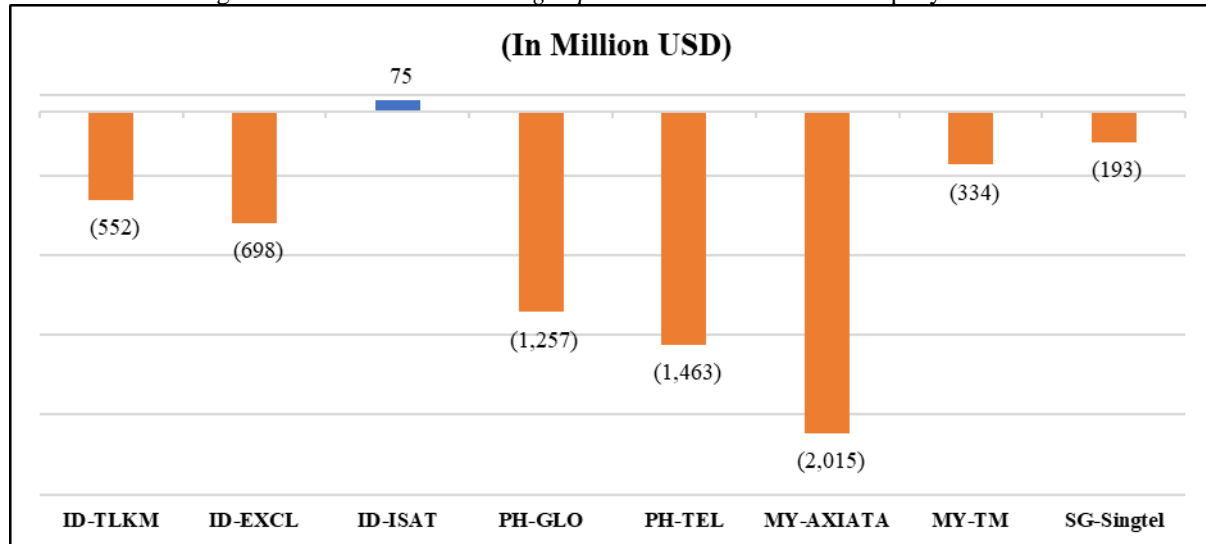
Palabras clave: Capital Circulante, Desarrollo Financiero, Rentabilidad, Telecomunicaciones.

INTRODUCTION

Market Outlook 2023, issued by the Economist Intelligence Unit in 2022, explains that the telecommunications and technology sector will experience a slowdown in revenue growth in 2023 due to global macroeconomic barriers. ATKearney (2019) mentions that telecommunications provider companies in ASEAN will reserve 15-20% of the revenue for capital expenditure investments in 5G and fiber network implementation. Amid predictions of slowing revenue growth and investment needs for 5G and fiber network implementation, companies must align their financial and investment strategies to maintain profitability and trade-off against corporate risk to create financial sustainability. Furthermore, based on the results of research from BDO (2022) explains that globally there is an increase in the credit and

liquidity risk of telecommunications companies due to global macroeconomic conditions, operating cash flow, and financing limitations.

Figure 1. ASEAN-4 *Net working capital* telecommunication company in 2021



Source: Prepared by the authors (2023)

Most telecommunications companies in ASEAN-4 countries in 2021 have a negative net working capital value (trade receivables plus inventory minus trade payables) in the range of minus 193 million to minus 2 billion US dollars (Figure 1). It reflects the potential risk of financial difficulties if not careful in managing its working capital. And then, it will increase the external funding needs of ASEAN-4 telecommunication companies in the financial markets. Compared to the financial markets of developed countries, the financial markets of ASEAN countries are relatively less developed (Setianto et al., 2022). According to Lee et al. (2012), companies in developing countries may rely more on internal funds and banks as a source of financing because the stock market is less developed. The banking sector is still the main form of financial intermediation and the primary source of external capital for companies and parties that need capital to run their business (Mishkin, 2001). The ease of access to funding in a country can be seen from the macroeconomic conditions of a country, especially the Financial Development Index.

Working capital management and corporate strategy are interrelated, where companies with good working capital policies are in an excellent position to finance the company's investment and operations to win the competition and improve the company's competitive position (Preve & Sarria-Allende, 2010). According to Sagner (2014), working capital mismanagement hinders financial performance. Working capital management is usually

proxied by cash conversion cycle (CCC) variables, inventory conversion period, average accounts receivable period, and accounts payable period both in aggregate and disaggregate (Bashir & Regupathi, 2021; Basyith et al., 2021; Chand Garg, 2022; Firmansyah et al., 2018; Hoang, 2015; Hussain et al., 2021; Kayani et al., 2020; Mandipa & Sibindi, 2022; Mansoori & Jorih Muhammad, 2012; S et al., 2017; Simon et al., 2019; Syeda, 2021; Tahir & Anuar, 2016). Furthermore, working capital policy is usually proxied by the Working Capital Investment Policy (WCIP) and Working Capital Financing Policy (WCFP) variables. The Working Capital Investment Policy is calculated by comparing its current assets with the company's total assets, and the Working Capital Financing Policy is calculated by comparing the value of short-term debt with the company's total assets (Adam et al., 2017; Bandara & Bandara, 2015; Basyith et al., 2021; Farhan et al., 2021; Sunardi et al., 2021; Temtime, 2016; Vuković & Jakšić, 2019). According to Bandara & Bandara (2015), corporate finance is related to three decisions such as capital structure decisions, capital budgeting decisions, and working capital management decisions; among the three, working capital management is an essential component in corporate finance because it affects the profitability and liquidity of the company. Working capital management is closely related to the personnel who carry out working capital management. According to Ujah et al. (2020), there is a positive relationship between talented managerial talent and working capital management which gives higher results on the Cash Conversion Cycle (CCC).

This study analyzes the comparison of working capital management. Then it analyzes internal factors (working capital) and external factors (financial development) on profitability, both short-term (accounting-based) and long-term (market-based) in telecommunications companies in ASEAN-4 with a sample of telecommunications companies listed on the ASEAN-4 Stock Exchange with an observation period from 2012 to 2021. This study is the first to comprehensively link financial development (FD) factors to the management and policy of working capital in telecommunications companies in ASEAN-4. The results of this study are expected to provide novelty to previous research, where the Net Trade Cycle (NTC) variable becomes an alternative in calculating the efficiency level of working capital management. Then the Financial development ratio can be a consideration for company management and investors in making financial and investment decisions.

LITERATURE REVIEW

Working capital is a complex concept, where managers and company owners struggle to solve the problem analysis using a simple working capital formula model, which focuses on the net value of current assets (Preve & Sarria-Allende, 2010). A company's liquidity level can be measured by the amount of working capital owned by the company, including the measurement of efficiency and short-term financial health. There is much literature that analyzes working capital both in terms of working capital management and in terms of working capital policy, which influences company performance with research samples from various countries, including Indonesia (Basyith et al., 2021; Firmansyah et al., 2018; Sunardi et al., 2021), Malaysia (Bashir & Regupathi, 2021; S et al., 2017; Zariyawati et al., 2016), Singapore (Mansoori & Jorah Muhammad, 2012), Vietnam (Hoang, 2015), ASEAN-5 (Setianto et al., 2022), India (Bhatia & Srivastava, 2016; Chand Garg, 2022; Farhan et al., 2021), Pakistan (Hussain et al., 2021; Nazir & Afza, 2009), Sri Lanka (Bandara & Bandara, 2015), South Africa (Mandipa & Sibindi, 2022), Poland (Jaworski & Czerwonka, 2021; Zimon & Tarighi, 2021), the United States (Syeda, 2021; Ujah et al., 2020), and Australia and New Zealand (Kayani et al., 2020).

According to Gitman & Zutter (2015), the Cash Conversion Cycle (CCC) measures the time it takes a company to convert cash invested in its operations into cash received due to its operations. Another measure to assess the efficiency of working capital management is the Net Trade Cycle (NTC). According to Shin & Soenen (1998), the NTC measure is an alternative to CCC because it considers that CCC is only a measure based on the addition of different time lags (Inventory days, Accounts Receivable days, and Accounts Payable days). NTC is a measure that contains a CCC component but is expressed as a percentage of sales. It allows better insight into the performance of working capital management as it considers sales growth.

Working capital policy concerns the proportion of investment in current assets and short-term financing chosen by the company to see the level of profitability and risk of the company that is a trade-off (Gitman & Zutter, 2015). Then according to Bandara & Bandara (2015), Working Capital Management Policy is the way companies invest in their current assets, known as the working capital investment policy (WCIP), and use short-term liabilities to finance company assets, known as the working capital financing policy (WCFP). According to Brigham & Houston (2019), there are three alternative options that management can choose from regarding working capital policy including: 1) Relaxed Investment Policy: the value of cash, marketable securities, and inventory is relatively large, then the sales credit policy is

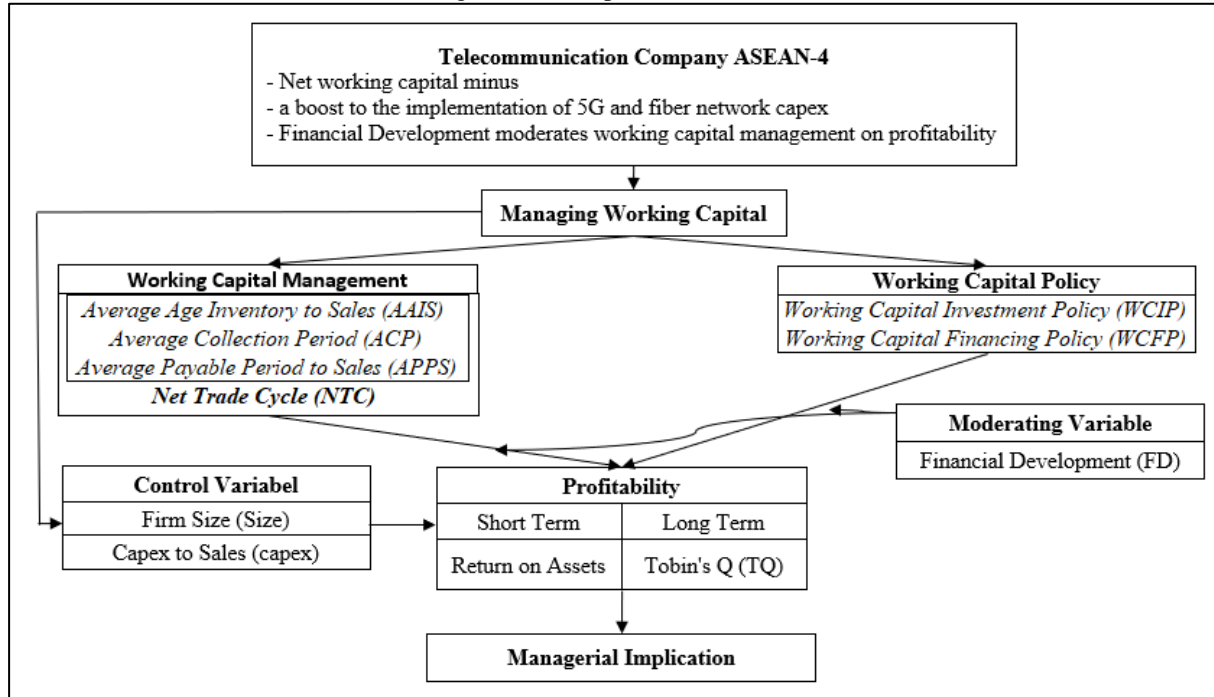
liberal, resulting in a high level of accounts receivable; 2) Restricted Investment Policy: the value of cash, marketable securities, inventories, and receivables is limited or small; 3) Moderate Investment Policy: Investment policy that is between relaxed and restricted policies. Furthermore, in terms of the company's current asset financing policy, there are three policies that companies can take, including 1) Moderate Approach (Maturity Matching /Self Liquidating Approach), where the funding used follows the nature of the assets invested; 2) Aggressive Approach where a portion of permanent current assets are funded using short-term funding and 3) Conservative approach where permanent assets and some current assets are financed by long-term funding.

Although profitability is not an explicit component of working capital, it is interrelated as any change in working capital components directly impacts profits; if profit ratios deteriorate or are below competitors, this may indicate a problem and an opportunity for working capital improvement (Sagner, 2014). Comparing profit to revenue is a useful operational metric to assess the efficiency of a company, but comparing profit to resources used tells us how efficiently profit is generated on invested assets. Measuring a company's performance can be seen from its qualifications and effectiveness, usually, the parameters used in measuring its performance through a financial ratio analysis approach (Mardawiyah et al., 2020). ROA is a short-term accounting-based measure, while Tobin's Q is a market-based measure and, arguably, a long-term measure of company performance (Tayeh et al., 2015).

According to (Schmukler & Vesperoni, 2006), the financing policy taken by the company is influenced by financial development factors where the company operates. Financial development lowers the cost of debt financing, thus providing better financing opportunities and encouraging companies to use more debt (Baños-Caballero et al., 2013).

Based on the background of the problems and challenges faced by telecommunications companies in ASEAN-4, primarily related to working capital management, telecommunications companies are required to maximize company value through increased profitability to win the competition. By increasing the company's value, the company's ultimate goal of maximizing shareholder prosperity can be achieved (Gitman & Zutter, 2015). So that the model made in this study is through a holistic working capital management approach consisting of working capital management and policies as internal factors coupled with external factors in the form of moderating ratios which are expected to have an impact on company profitability both in the short and long term (Figure 2)..

Figure 2. Conceptual Framework



Source: Prepared by the authors (2023)

DATA AND METHODOLOGY

The data used in this study are secondary in the form of company annual reports published on the company's official website. The sample population consists of telecommunications companies listed on the stock exchanges of ASEAN countries, namely Indonesia, Malaysia, Philippines, Singapore, and Thailand, for the period 2012-2021. The sample of this study was selected based on the purposive sampling technique, which is one type of nonprobability sampling where the sample is selected based on certain conditions and criteria (Cooper & Schindler, 2014). With criteria including 1) The company has complete financial statement information, 2) Does not have outlier data on the variables studied from 2012-2021 by using the z-score method with a confidence interval of 99% (minimum z-score -2.5 and maximum 2.5). The total sample of companies studied was eight in 4 ASEAN countries, including Indonesia, Malaysia, Singapore, and the Philippines, with 80 financial statement sample data. Then the ratio of financial development (Financial Development) is obtained from the official website data of the World Bank database (World Bank) from 2012-2020.

Dependent variables are proxied by short-term performance variables (ROA) and long-term performance (Tobin'sQ), then independent variables are proxied by working capital management both in terms of working capital management (NTC, ACP, AAIS, APPS) and working capital policy (WCIP, WCFP), coupled with control variables (Company size, and

Capex) and then moderating variables using the Financial development (FD) ratio. Detailed data related to all variables used in the model are presented in Table 1.

Table 1. Definition of each variable

Variable type	Variable name	Acronym	Formula
Dependent	Return on Assets	ROA	Net Income/ average total Assets
Dependent	Tobin's Q	TQ	(Market Value of Equity+Book Value of Liability)/ Book value of Assets
Independent	Net Trade Cycle	NTC	NTC = ACP+AAIS - APPS
Independent	Average Collection Period	ACP	Accounts Receivable/Sales x 365 days
Independent	Average Age Inventory to Sales	AAIS	Inventory/Sales x 365 days
Independent	Average Payable Period to Sales	APPS	Accounts Payable/Sales x 365 days
Independent	Working Capital Investment Policy	WCIP	Current Assets/Total Assets
Independent	Working Capital Financing Policy	WCFP	Short-term Debt/Total Assets
Control	Firm Size	Size	Ln (Total Asset)
Control	Capex to Sales	Capex	Additional Fixed Asset/Sales
Moderation	Financial Development	FD	Financial Development Ratio

Source: Prepared by the authors (2023)

This research is quantitative with a descriptive approach to explain the influence of the variables studied. Data is processed on the financial statements of telecommunications companies in ASEAN-4 to produce the information needed. This study uses panel data regression analysis to see the effect of working capital management variables on company profitability. The research model used in this study consists of 12 models, which are classified into four main parts, as follows:

Working Capital Management (Without Moderation)

$$ROA_{it} = \alpha + \beta_1 NTC_{it} + \beta_2 Size_{it} + \beta_3 Capex_{it} + \varepsilon_{it} \text{ (Aggregat) } \dots \text{ Model 1a}$$

$$ROA_{it} = \alpha + \beta_1 ACP_{it} + \beta_2 AAIS_{it} + \beta_3 APPS_{it} + \beta_4 Size_{it} + \beta_4 Capex_{it} + \varepsilon_{it} \text{ (Disaggregat) } \dots$$

Model 1b

$$TQ_{it} = \alpha + \beta_1 NTC_{it} + \beta_2 Size_{it} + \beta_3 Capex_{it} + \varepsilon_{it} \text{ (Aggregat) } \dots \text{ Model 1c}$$

$$TQ_{it} = \alpha + \beta_1 ACP_{it} + \beta_2 AAIS_{it} + \beta_3 APPS_{it} + \beta_4 Size_{it} + \beta_4 Capex_{it} + \varepsilon_{it} \text{ (Disaggregat) } \dots \text{ Model 1d}$$

Working Capital Policy (Without Moderation)

$$ROA_{it} = \alpha + \beta_1 WCIP_{it} + \beta_2 WCFP_{it} + \beta_3 Size_{it} + \beta_4 Capex_{it} + \varepsilon_{it} \dots \text{ Model 2a}$$

$$TQ_{it} = \alpha + \beta_1 WCIP_{it} + \beta_2 WCFP_{it} + \beta_3 Size_{it} + \beta_4 Capex_{it} + \varepsilon_{it} \dots \text{Model 2b}$$

Working Capital Management (With Moderation)

$$ROA_{it} = \alpha + \beta_1 NTC_{it} * FD_{it} + \beta_2 Size_{it} + \beta_3 Capex_{it} + \varepsilon_{it} \text{ (Aggregat) } \dots \text{Model 3a}$$

$$ROA_{it} = \alpha + \beta_1 ACP_{it} * FD_{it} + \beta_2 AAIS_{it} * FD_{it} + \beta_3 APPS_{it} * FD_{it} + \beta_4 Size_{it} + \beta_5 Capex_{it} + \varepsilon_{it} \text{ (Disaggregat) } \dots \text{Model 3b}$$

$$TQ_{it} = \alpha + \beta_1 NTC_{it} * FD_{it} + \beta_2 Size_{it} + \beta_3 Capex_{it} + \varepsilon_{it} \text{ (Aggregat) } \dots \text{Model 3c}$$

$$TQ_{it} = \alpha + \beta_1 ACP_{it} * FD_{it} + \beta_2 AAIS_{it} * FD_{it} + \beta_3 APPS_{it} * FD_{it} + \beta_4 Size_{it} + \beta_5 Capex_{it} + \varepsilon_{it} \text{ (Disaggregat) } \dots \text{Model 3d}$$

Working Capital Policy (With Moderation)

$$ROA_{it} = \alpha + \beta_1 WCIP_{it} * FD_{it} + \beta_2 WCFP_{it} * FD_{it} + \beta_3 Size_{it} + \beta_4 Capex_{it} + \varepsilon_{it} \dots \text{Model 4a}$$

$$TQ_{it} = \alpha + \beta_1 WCIP_{it} * FD_{it} + \beta_2 WCFP_{it} * FD_{it} + \beta_3 Size_{it} + \beta_4 Capex_{it} + \varepsilon_{it} \dots \text{Model 4b}$$

RESULTS AND DISCUSSION

Descriptive Analysis

Table 2 presents descriptive statistics of all performance variables (ROA, Tobin'sQ), working capital management variables (NTC, ACP, AAIS, APPS), working capital policy variables (WCIP, WCFP), control variables (Size, Capex) and moderating variables (Financial Development) for all samples and from all ASEAN-4 countries in the form of mean, maximum, minimum and standard deviation. In the research sample, the average ROA is 5%, whereas Singapore has the highest average ROA of 7.5%. Furthermore, the average Tobin'sQ is 1.65, whereas the Philippines has the highest average Tobin'sQ value of 1.88. In the form of working capital management shows an average Net trade Cycle (NTC) of -45.1 days; this is due to the Average Collection Period (ACP) value of 54.3 days and Average Age Inventory to Sales (AAIS) of 4.3 days and then the Average Payable Period to Sales (APPS) value of 103.7 days. Furthermore, in terms of working capital policy, the average investment value (WCIP) is 0.19; this value is smaller than 0.5, which indicates that the company applies a restricted investment policy in its working capital investment policy (Adam et al., 2017; Farhan et al., 2021). Furthermore, in terms of working capital funding (WCFP), on average, telecommunications companies in ASEAN-4 apply a Conservative Approach policy in their working capital financing policy; this can be seen from the average WCFP value below 0.5 or 0.27. For control variables, the average size of telecommunications companies in ASEAN-4 (SIZE) is 22.94 (in natural logarithm), where Singapore has the highest value, and the average increase in fixed

assets to sales (CAPEX) is 0.29, where Indonesia has the highest average value of 0.34. And then the Financial Development (FD) ratio shows an average of 0.81, whereas Singapore has the highest average Financial Development ratio of 1.22. The Financial Development (FD) data in ASEAN-4 used time series data from 2012-2020 or nine years, and researchers still need to find updated data from the world bank (world bank database) for 2021. So that in calculating panel data regression for working capital management moderating to Financial Development (FD) uses, data from 2012 to 2020.

Table 2. Descriptive Statistics

Variable	Country	N	Mean	Maximum	Minimum	Dev. Std
ROA	Indonesia	30	0.055	0.173	-0.058	0.078
	Malaysia	20	0.028	0.069	-0.074	0.031
	Singapura	10	0.075	0.113	0.012	0.034
	Filipina	20	0.051	0.089	-0.026	0.031
	ASEAN-4	80	0.050	0.173	-0.074	0.055
TQ	Indonesia	30	1.60	2.69	0.94	0.52
	Malaysia	20	1.49	1.86	1.13	0.25
	Singapura	10	1.61	1.97	1.22	0.26
	Filipina	20	1.88	2.50	1.19	0.40
	ASEAN-4	80	1.65	2.69	0.94	0.43
NTC	Indonesia	30	-24.5	37.3	-135.8	52.5
	Malaysia	20	-67.2	1.0	-125.9	40.8
	Singapura	10	0.8	17.8	-6.6	8.5
	Filipina	20	-76.7	-17.2	-140.3	34.1
	ASEAN-4	80	-45.1	37.3	-140.3	50.1
ACP	Indonesia	30	24.9	46.9	6.3	11.6
	Malaysia	20	74.8	112.1	43.7	15.4
	Singapura	10	100.9	127.0	73.9	22.6
	Filipina	20	54.4	86.6	36.3	14.1
	ASEAN-4	80	54.3	127.0	6.3	30.4
AAIS	Indonesia	30	1.5	3.0	0.2	0.8
	Malaysia	20	3.8	7.8	1.2	1.9
	Singapura	10	5.0	8.8	0.3	2.6
	Filipina	20	8.8	15.0	0.4	3.8
	ASEAN-4	80	4.3	15.0	0.2	3.7
APPS	Indonesia	30	50.9	145.1	3.8	42.7
	Malaysia	20	145.9	210.8	108.9	34.7
	Singapura	10	105.2	139.4	82.2	19.5
	Filipina	20	139.9	188.3	68.2	35.7
	ASEAN-4	80	103.7	210.8	3.8	56.1
WCIP	Indonesia	30	0.18	0.29	0.10	0.05
	Malaysia	20	0.23	0.34	0.14	0.06
	Singapura	10	0.13	0.15	0.11	0.01
	Filipina	20	0.20	0.26	0.12	0.04
	ASEAN-4	80	0.19	0.34	0.10	0.06
WCFP	Indonesia	30	0.28	0.45	0.20	0.07
	Malaysia	20	0.25	0.37	0.18	0.04
	Singapura	10	0.17	0.22	0.14	0.03
	Filipina	20	0.33	0.40	0.24	0.04
	ASEAN-4	80	0.27	0.45	0.14	0.07
SIZE	Indonesia	30	22.59	23.69	22.02	0.58

	Malaysia	20	23.08	23.81	22.41	0.49
	Singapura	10	24.23	24.33	24.12	0.09
	Filipina	20	22.70	23.24	22.00	0.41
	ASEAN-4	80	22.94	24.33	22.00	0.71
CAPEX	Indonesia	30	0.34	0.58	0.18	0.11
	Malaysia	20	0.23	0.34	0.13	0.05
	Singapura	10	0.13	0.15	0.11	0.01
	Filipina	20	0.33	0.74	0.17	0.13
	ASEAN-4	80	0.29	0.74	0.11	0.12
FD	Indonesia	9	0.38	0.39	0.33	0.02
	Malaysia	9	1.21	1.34	1.14	0.05
	Singapura	9	1.22	1.31	1.13	0.05
	Filipina	9	0.42	0.52	0.32	0.07
	ASEAN-4	36	0.81	1.34	0.32	0.04

Source : Prepared by the authors (2023)

Panel Data Regression Analysis

There are three tests to determine the best estimation model among three possible models. First, the Chow test is conducted to compare the Common Effect Model (CEM) and the Fixed Effect Model (FEM). Second, the Hausman test to choose between the Fixed Effect Model (FEM) and the Random Effect Model (REM). Third, the Lagrange Multiplier test is used to choose between the Random Effect Model (REM) and the Common Effect Model (CEM); where Table 3 shows the results of these three tests.

Table 3. Selection of the best model

F Statistical Test	Model											
	1a	1b	1c	1d	2a	2b	3a	3b	3c	3d	4a	4b
Chow	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hausman	0.22	0.00	0.27	0.00	0.25	0.34	0.24	0.02	0.40	0.01	0.03	0.22
Langrange Multiplier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Best Model	REM	FEM	REM	FEM	REM	REM	REM	FEM	REM	FEM	FEM	REM

Notes: REM (Random Effect Model); FEM (Fixed Effect Model)

Source: Prepared by the authors (2023)

In order to produce a regression model that meets the BLUE (Best Linear Unbiased Estimator) criteria, it is necessary to test classical assumptions, including Normality Test, Heteroscedasticity Test, Autocorrelation Test, and Multicollinearity Test. According to Gujarati (2004), if the model selected after conducting the Chow test and Hausman test is REM, the model is assumed to be the best linear unbiased estimator (BLUE), and there is no need to test the three main assumptions of the BLUE model (non-multicollinearity, homoskedasticity, and non-autocorrelation). It is due to two reasons, namely: (i) the nature of panel data is free from multicollinearity symptoms, and (ii) REM is a generalized least square (GLS) model, and

estimation using GLS is automatically free from autocorrelation symptoms, and even free from heteroscedasticity symptoms due to constant variance of sisal. For models 1a,1c,2a,2b,3a,3c, and 4b, there is no need to test classical assumptions because the selected model is a random effect model (REM). And then, for all selected models using the Fixed Effect Model (FEM), such as 1b,1d,3b,3d, and 4a, the classical assumption test is carried out, with the test results in Table 4.

Table 4. Classical Assumption Test

Classical Assumption Test	Method	1b	1d	3b	3d	4a	Result
Normality	Jarque-Bera Test ($p > 0.05$)	0.449	0.159	0.771	0.221	0.288	residuals are normally distributed
Heteroscedasticity	uji Breusch-Pagan-Godfrey Test ($p > 0.05$)	0.14	0.14	0.35	0.58	0.11	the variance of the residuals is constant (homogeneous)
Autocorrelation	Durbin-Watson Test ($dU < DW < 4-dU$)	$1.772 < DW < 2.228$		$1.769 < DW < 2.231$		$1.737 < DW < 2.257$	no autocorrelation
		1.781	1.839	1.872	1.773	1.798	
Multicollinearity	Variance Inflation Factor Test ($VIF < 10$)						no multicollinearity between independent variables
	- ACP	2.34					
	- AAIS	1.56					
	- APPS	1.77					
	- SIZE	1.78					
	- CAPEX	1.96					
	- ACPFD			6.11			
	- AAISFD			2.23			
	- APPSFD			3.17			
	- SIZE			2.02			
	- CAPEX			1.93			
	- WCIPFD					3.70	
	- WCFPF					3.33	
- SIZE					1.85		
- CAPEX					2.12		

Source : Prepared by the authors (2023)

The Effect of Working Capital on Profitability (Without Moderation)

In the working capital management component (models 1a, 1b, 1c, and 1d) in Table 5, aggregate Net Trade Cycle (NTC) has a positive and significant effect on long-term profitability (Tobin'sQ), and it has no significant effect on short-term profitability (ROA). Previous research looking at working capital efficiency on Return on Assets (ROA) in telecommunications companies explained that there was a positive relationship between Cash Conversion Cycle and ROA (Zakari, 2016). Research from S Laureano et al. (2013) explained that there was a positive relationship between Net Trade Cycle (NTC) and ROA. And then, disaggregating only the

Average Payable Period to Sales (APPS) variable has a negative and significant effect on short-term profitability (ROA) and long-term profitability (Tobin'sQ). These results are similar to S Laureano et al. (2013) and Bashir & Regupathi (2021) research. In contrast, the Average Collection Period (ACP) and Average Age Inventory to Sales (AAIS) variables produce insignificant probability numbers on short-term profitability (ROA) and long-term profitability (TQ).

The descriptive analysis results show that the average telecommunication company runs aggressively in managing the Net Trade Cycle. The average value of NTC is -45.1 days due to the average value of ACP 54.3 days, AAIS 4.3 days, and APPS 103.7 days. Suppose we compare these regression results, which state that there is a positive influence on NTC and a negative influence on APPS in improving company performance. Thus, working capital management currently carried out by telecommunications companies in ASEAN-4 needs to be re-evaluated because aggressive behavior in working capital management will be counterproductive to company performance both in the short and long term.

Furthermore, in the working capital policy component (models 2a and 2b), the working capital financing policy (WCFP) has a negative and significant effect on long-term profitability (Tobin'sQ). This result is similar to the research conducted by Nazir & Afza (2009). It indicates that high long-term debt in its working capital funding policy or a conservative approach will improve the company's short- and long-term performance. Then this conservative approach will help the company achieve financial sustainability because using long-term debt impacts reducing liquidity risk.

Furthermore, the Working Capital Investment Policy (WCIP) variable has no significant effect on short-term profitability (ROA) and long-term profitability (TQ) in telecommunications companies in ASEAN-4. These results differ from the results of previous studies, which state that the Working Capital Investment Policy (WCIP) has a positive effect on short-term profitability (ROA), as conducted by Nazir & Afza (2009), Vuković & Jakšić (2019), Basyith et al. (2021), Sunardi et al. (2021), Farhan et al. (2021) and then research that states there is a positive influence between Working Capital Investment Policy (WCIP) and long-term profitability (TQ) as conducted by (Nazir & Afza, 2009).

Table 5. Regression results of models 1a,1b, 1c, 1d, 2a and 2b

Variable	Model 1a (DV=ROA)		Model 1b (DV=ROA)		Model 1c (DV=TQ)		Model 1d (DV=TQ)		Model 2a (DV=ROA)		Model 2b (DV=TQ)	
	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.
NTC	0.0003	0.1408			0.0054	0.0001***						
ACP			-0.0003	0.4031			-0.0007	0.7400				
AAIS			0.0011	0.5892			0.0142	0.3031				
APPS			-0.0004	0.0481**			-0.0074	0.0000***				
WCIP									0.1745	0.2317	0.5675	0.5878
WCFP									-0.0338	0.7087	-2.8147	0.000***
SIZE	-0.0114	0.5165	-0.0427	0.0822*	-0.1411	0.3180	-0.2034	0.2084	-0.0054	0.7713	-0.2723	0.0578*
CAPEX	-0.0613	0.2373	-0.0103	0.8517	0.3421	0.3685	0.7161	0.0534*	-0.0819	0.087*	-0.2222	0.5110
R-squared		0.1113		0.7328		0.2297		0.8090		0.1043		0.2576
F-statistic		3.1734		15.3115		7.5524		23.6518		2.1833		6.5045
Prob(F-statistic)		0.0289**		0.000***		0.0002***		0.0000***		0.0789*		0.0002***
Model	REM		FEM		REM		FEM		REM		REM	

Notes: ***) significant level at 1% ; **) significant level at 5% ; *) significant level at 10%, DV : Dependent Variable

Source: Prepared by the authors (2023)

Working Capital Management (With Moderation)

This study is the first to link the Financial Development (FD) factor to working capital management. The results show that Financial Development (FD) moderates the effect of working capital management variables both in aggregate (NTC*FD) and in disaggregate (APPS*FD); this can be seen from the increase in the coefficient value and its probability (models 3a,3b,3c and 3d) in Table 6. The Interaction Variable of the Net Trade Cycle with Financial Development (NTC*FD) significantly affects short-term profitability (ROA) and long-term profitability (Tobin'sQ). Where before moderation, NTC only has a significant effect on long-term profitability (Tobin'sQ). Then from the interaction of the Average Payable Period to Sales with Financial Development (APPS*FD), it can be seen that there is an increase in the coefficient value of the effect on short-term profitability (ROA) and long-term profitability (Tobin'sQ) from minus 0.0074 to minus 0.0088. This result indicates that the Financial Development (FD) ratio level affects working capital management on the short-term and long-term profitability of telecommunication companies ASEAN-4.

Models 4a and 4b showed the same results on working capital policy with moderation. Working Capital Financing Policy (WCFP) negatively and significantly influenced short-term (ROA) and long-term profitability (Tobin'sQ). Where before moderation Working Capital Financing Policy (WCFP) only negatively and significantly affected long-term profitability. These results explain that financial development moderates the Working Capital Financing Policy (WCFP) variable on short-term (ROA) and long-term (Tobin'sQ) profitability.

Table 6. Regression results of models 3a, 3b, 3c, 3d, 4a and b

Variable	Model 3a (DV=ROA)		Model 3b (DV=ROA)		Model 3c (DV=TQ)		Model 3d (DV=TQ)		Model 4a (DV=ROA)		Model 4b (DV=TQ)	
	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.
NTC*FD	0.0005	0.0203**			0.0068	0.0004***						
ACP*FD			0.0000	0.9450			0.0015	0.6228				
AAIS*FD			0.0007	0.7918			0.0067	0.7416				
APPS*FD			-0.0006	0.0147**			-0.0088	0.0000***				
WCIP*FD									-0.1041	0.5326	-0.1689	0.8654
WCFP*FD									-0.2600	0.0123**	-3.6960	0.0000***
SIZE	-0.0022	0.9042	-0.0170	0.5258	-0.0886	0.5704	0.0296	0.8854	-0.0373	0.1367	-0.0312	0.8262
CAPEX	-0.0822	0.1057	-0.0413	0.4285	-0.5882	0.1534	-0.2367	0.5548	-0.0699	0.1789	-0.7183	0.0617*
R-squared		0.1401		0.7965		0.2443		0.8023		0.7865		0.3517
F-statistic		3.6943		19.2458		7.3258		19.9490		20.0887		9.0849
Prob(F-statistic)		0.0159**		0.0000***		0.0003***		0.0000***		0.0000***		0.0000***
Model	REM		FEM		REM		FEM		FEM		REM	

Notes: ***) significant level at 1%; **) significant level at 5% ; *) significant level at 10% , DV : Dependent Variable

Source: Prepared by the authors (2023)

Managerial Implications

This study proves that working capital management and working capital policy affect short-term profitability proxied by Return on Asset (ROA) and long-term profitability proxied by Tobin'sQ (TQ). And then external conditions, namely the ratio of Financial Development (FD), significantly moderate the management of working capital on short-term profitability (ROA) and long-term profitability (Tobin'sQ) in telecommunications companies in ASEAN-4.

For the management of telecommunications companies in ASEAN-4, these results can be considered to manage working capital appropriately to increase firm value by analyzing internal factors, namely working capital, and external factors, Financial Development (FD). Company management can use the Net Trade Cycle (NTC) variable as an alternative to measuring effectiveness in managing its working capital because the nature of the telecommunications company industry is a service company where the presentation of information related to the Cost of Goods Sold (COGS) cannot be found so that the value of revenue becomes an alternative to measure the cycle of working capital variables such as inventory, and accounts payable variables.

Then also for the management of telecommunications companies in ASEAN-4 need to focus on extending the Net Trade Cycle (NTC) cycle to increase profitability. The decision to shorten or lengthen each industry's Net Trade Cycle (NTC) will provide different results due to the nature and business model of each industry, which has its characteristics and peculiarities. Then if we look deeper into the pattern of decisions to lengthen the Net Trade Cycle (NTC) on a disaggregate basis, the company must focus on reducing the Average Payable Period to Sales (APPS) days. This reduction in the number of days indicates that telecommunications companies are better off using long-term debt than short-term debt. It is also supported by the policy on Working Capital Financing Policy (WCFP), where a low Working Capital Financing Policy (WCFP) ratio will increase short-term and long-term profitability proxied by ROA and Tobin'sQ. It is also supported by the results of descriptive statistics, which show that all ASEAN-4 telecommunications companies in the object of research apply a conservative approach in their working capital financing policy. And then, the working capital investment policy of telecommunications companies in ASEAN-4 applies a restricted investment policy; the restricted investment policy in telecommunications companies in ASEAN-4 is natural because the telecommunications industry's characteristics require high investment value in fixed assets.

For investors, the results of this study will provide benefits in analyzing companies that become investment targets by including working capital management variables both in terms of management and working capital policy because the results of this study prove the influence of these variables on short-term profitability (ROA) and long-term profitability (Tobin'sQ).

For ASEAN-4 governments in making policies, they should prioritize Financial Development (FD) reforms by ensuring that companies are given easy access to finance, which will impact industrial growth, especially the telecommunications industry. This study found that Financial Development (FD) is significant in working capital management and policies, primarily related to working capital financing strategies. According to Naceur et al. (2017), the effectiveness of Financial Development in increasing growth varies across income levels and regions, where middle-income countries with good financial access have higher investment growth. High Financial Development (FD) in a country indicates easy access to financial funding sources, both privately and corporately. (Setianto et al., 2022) explain that Financial Development (FD) expands corporate financing sources, reduces financial constraints, and effectively reduces the company's external financing costs.

CONCLUSION

The working capital management condition of telecommunications companies in ASEAN-4 shows an average value of minus 45 days on the Net Trade Cycle (NTC), which is due to the Average Collection Period (ACP) of 54 days and the Average Age Inventory to Sales (AAIS) of 4 days and then the Average Payable Period to Sales (APPS) of 103 days. After that, in terms of working capital policies, telecommunications companies in ASEAN-4, on average, apply a conservative policy in managing their working capital funding, and then in terms of their working capital investment policies, on average, telecommunications companies in ASEAN-4 apply a restricted investment policy strategy.

And then the internal factors (working capital) that have a significant influence on the short-term (ROA) and long-term profitability (Tobin'sQ) of the company are Net Trade Cycle (NTC), Average Payable Period to Sales (APPS), and Working Capital Financing Policy (WCFP). Furthermore, the macroeconomic ratio of Financial Development (FD) moderates the effect of working capital variables on the short-term and long-term profitability of telecommunications companies in ASEAN-4.

This study has several limitations for further research to complement the limitations of this study. The results of this study indicate that conservative policy is the best policy, but there

is a risk of increasing working capital requirements. Further research can be carried out by adding a more extensive sample coverage to telecommunications companies in Asia, Africa, Europe, America, and the rest of the world to determine the consistency of this research.

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