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THE IMPACT OF PUBLIC GOVERNMENT ON THE RELATIONSHIP BETWEEN CONSUMER CONFIDENCE AND STOCK MARKET INDEX: A STUDY

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ABSTRACT

Purpose: The article aims to study the impact of public governance on the relationship between consumer confidence and the stock market index.

Theoretical framework: The concept of consumer confidence index: According to consumer confidence, and stock market index is a way to measure expected changes in income. Katona also argues that consumer trust includes emotional and intellectual factors.

Design/methodology/approach: Data is collected from 2012 to 2021 from 10 middle-income countries. The public governance variable is measured by 6 component variables, including (1) Voice and accountability, (2) Political stability, (3) Government efficiency, (4) Regulatory quality, (5) the rule of law, and (6) Control of corruption. Consumer confidence is measured by the consumer confidence index (CCI) and the stock market index (SMI). The authors use P. VAR model to solve the set goal.

Findings: The research results show that public governance positively affects the relationship between consumer confidence and the stock market price index in high-middle-income countries. In contrast, public administration does not influence the relationship between consumer confidence and the stock market index in low-income countries.

Research, Practical & Social implications: Based on the research results, the authors propose policy implications for middle-income countries for investors' confidence and investment activities on the stock market, contributing to boosting capital in the future more efficient circular economy.

Originality/value: Government must increase its accountability to the people and investors for all activities and decisions of the Government. Creating a stable political environment, prioritizing dispute settlement by peaceful negotiations.

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O IMPACTO DO GOVERNO PÚBLICO NA RELAÇÃO ENTRE A CONFIANÇA DO CONSUMIDOR E O ÍNDICE DO MERCADO DE AÇÕES: UM ESTUDO

RESUMO

Objetivo: O artigo tem como objetivo estudar o impacto da governança pública sobre a relação entre a confiança do consumidor e o índice do mercado de ações.

Estrutura teórica: O conceito de índice de confiança do consumidor: De acordo com a confiança do consumidor, o índice do mercado de ações é uma forma de medir as mudanças esperadas na renda. Katona também argumenta que a confiança do consumidor inclui fatores emocionais e intelectuais.

Projeto/metodologia/abordagem: Os dados são coletados de 2012 a 2021 em 10 países de renda média. A variável de governança pública é medida por 6 variáveis componentes, incluindo (1) voz e responsabilidade, (2)

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estabilidade política, (3) eficiência do governo, (4) qualidade regulatória, (5) estado de direito e (6) controle da corrupção. A confiança do consumidor é medida pelo índice de confiança do consumidor (CCI) e pelo índice do mercado de ações (SMI). Os autores usam o modelo P. VAR para resolver o objetivo definido.
Conclusões: Os resultados da pesquisa mostram que a governança pública afeta positivamente a relação entre a confiança do consumidor e o índice de preços do mercado de ações em países de renda média alta. Em contrapartida, a administração pública não influencia a relação entre a confiança do consumidor e o índice do mercado de ações em países de baixa renda.
Implicações sociais, práticas e de pesquisa: Com base nos resultados da pesquisa, os autores propõem implicações de políticas para os países de renda média no que se refere à confiança dos investidores e às atividades de investimento no mercado de ações, contribuindo para impulsionar o capital na futura economia circular mais eficiente.
Originalidade/valor: O governo deve aumentar sua responsabilidade perante a população e os investidores em relação a todas as atividades e decisões do governo. Criar um ambiente político estável, priorizando a resolução de disputas por meio de negociações pacíficas.

Palavras-chave: Confiança do Consumidor, Índice do Mercado de Ações, Impacto, Administração Pública, Governo.

EL IMPACTO DEL GOBIERNO PÚBLICO EN LA RELACIÓN ENTRE LA CONFIANZA DEL CONSUMIDOR Y EL ÍNDICE BURSÁTIL: UN ESTUDIO

RESUMEN
Objetivo: El artículo pretende estudiar el impacto de la administración pública en la relación entre la confianza del consumidor y el índice bursátil.
Marco teórico: El concepto de índice de confianza del consumidor: Según la confianza del consumidor, el índice bursátil es una forma de medir los cambios esperados en los ingresos. Katona también sostiene que la confianza del consumidor incluye factores emocionales e intelectuales.
Diseño/metodología/enfoque: Se recogen datos de 2012 a 2021 en 10 países de renta media. La variable de gobernanza pública se mide mediante 6 variables componentes, incluyendo (1) voz y rendición de cuentas, (2) estabilidad política, (3) eficiencia gubernamental, (4) calidad regulatoria, (5) estado de derecho y (6) control de la corrupción. La confianza de los consumidores se mide mediante el índice de confianza de los consumidores (ICC) y el índice bursátil (ISM). Los autores utilizan el modelo P. VAR para resolver el objetivo definido.
Conclusiones: Los resultados de la investigación muestran que la gobernanza pública afecta positivamente a la relación entre la confianza del consumidor y el índice de precios bursátiles en los países de renta media alta. Por el contrario, la gobernanza pública no influye en la relación entre la confianza de los consumidores y el índice bursátil en los países de renta baja.
Implicaciones sociales, prácticas y de investigación: Basándose en los resultados de la investigación, los autores proponen implicaciones políticas para los países de renta media en relación con la confianza de los inversores y las actividades de inversión bursátil, contribuyendo a impulsar el capital en la futura economía circular más eficiente.
Originalidad/valor: El gobierno debería aumentar su responsabilidad ante el público y los inversores en todas las actividades y decisiones gubernamentales. Crear un entorno político estable dando prioridad a la resolución de conflictos mediante negociaciones pacíficas.

Palabras clave: Confianza del Consumidor, Índice Bursátil, Impacto, Administración Pública, Gobierno.

INTRODUCTION

The stock market plays a critical role in the economic development of each country. The stock market is a gathering place to attract significant capital sources in the long term for the whole economy and a channel to help people have more investment opportunities. In the past time, the stock market has always fluctuated according to economic events. According to investor psychology, this was seen during the recent Covid-19 pandemic. For example, in

September 2022, foreign investors withdrew capital from stocks listed in China due to concerns about epidemic prevention measures under China's Zero Covid policy.

By November 2022, when the Chinese Government began to ease the epidemic prevention measures and the US-China tensions also subsided, it improved investor sentiment in China's stock market. On December 5th, 2022, the Chinese stock market rose sharply. As for the Indian stock market in September 2021, when the speed of vaccination against Covid-19 in this country was accelerated, increasing the optimism of investors in India, leading to the Indian stock market index rising. By the end of September, the S&P BSE Sensex index had risen and surpassed the 60,000 marks. However, in the first 6 months of 2022, capital outflows from the Indian market amounted to INR 2,170 billion, which caused the Indian stock index to drop 17% compared to the end of 2021.

However, the Indian stock market was only gloomy in the first 6 months of 2022. By July 2022, the market had recovered somewhat, and global investors started net buying Indian stocks and the stock index. India's stocks at the end of September rose 14.5%. In Vietnam, the VN-Index reached 1,528.57 points on December 22nd, 2021, an increase of 35.9% compared to the end of 2020. However, by the end of 2022, the VN-Index decreased sharply to 1007.09 points, and HNX-Index closed at 205.31 points. So why has such a significant fluctuation related to investors' confidence in the stock market? Does national governance affect investor confidence? This issue always attracts domestic and foreign managers and researchers (Baghaee et al., 2023).

To date, there have been many studies on the impact of consumer confidence on the stock market index, but studying the interrelationship of these two factors, especially under the effects of public governance in countries with the average income, including Vietnam, is still very limited. Therefore, the authors want to study to clarify this research gap, and from the research results, they will propose implications to help investors make the most reasonable investment decisions. Covid-19 affects all aspects of socioeconomic life, negatively affecting economic growth, commercial activities, labor, employment, and workers' income. However, in the face of this shock, the State quickly implemented robust solutions, first to limit the spread of the disease and then to develop the economy. The keys have shown initial success when controlling the disease, preventing it from spreading in the community for a long time, and socioeconomic development activities, especially business activities, including the stock market, are also improving again. Thus, the Government adjusts public governance to promote the development of the stock market. The authors chose "The impact of public government on

the Relationship between consumer confidence and stock market index: a study in medium-income countries" to research and answer the questions posed.

LITERATURE REVIEW

Theories of the Consumer Confidence Index

The concept of the consumer confidence index: According to Katona (1968), consumer confidence is a way to measure expected changes in income. Katona also argued that consumer trust includes emotional and intellectual factors. The dynamic element of optimism and pessimism has spread to other consumers. United Nations Statistics Division (2015) believed that this is a statistical indicator used to forecast consumer spending trends while providing information for assessing the current situation and prospects of the economic (Vidyakala, 2020; Xu et al., 2020).

Related Studies on the method of measuring consumer confidence index

(1) Research by Richard et al. (2000) shows that factors affecting consumer confidence include: income, inflation, economic growth, unemployment, savings, and self-directed spending. The author uses the consumer confidence index data set for 4 years from 1996 to 1999 in Russia and the United States and asserts that there is no need to use a weighted method to calculate the consumer confidence index used because the author thinks that with this calculation and the calculation using weights, there is no difference.

(2) Glenn & Eugenia (2014) conducted a survey of consumer confidence in 7 cities, namely Ho Chi Minh City, Hanoi, Da Nang, Can Tho, Hai Phong, Nha Trang, Dong Hoi, with sample size is 1000 samples by direct interview method. The survey subjects are people aged 14 years or older and publish the monthly consumer confidence index (Krishnan & Periasamy, 2022; Amis et al., 2022). The author calculates the consumer confidence index by amplification method for 5 questions, each with 3 answers.

(3) Curtin (2007) conducted a consumer confidence index survey in 37 countries. The author divided into 3 main groups based on the difference in reference time.

- Group 1: This group covers more than half of the countries, using the EU-harmonized questionnaire
- Group 2: Use questions for past and present with reference periods of 12 months and longer.
- Group 3: Using a reference period of 6 months.

The author also offers three methods to calculate the consumer confidence index for countries: Equilibrium value, amplification, and relative value (Aidi et al., 2023).

(4) According to the European Commission (2021), the first survey was the harmonized business survey in the manufacturing industry conducted in 1962, but in 1972 it was extended to survey consumer confidence. The program is implemented in 27 EU member states and five EU candidate countries: Albania, Montenegro, North Macedonia, Serbia, and Turkey. The purpose of a consumer survey consists of two parts:

- Collect information on households' spending and saving intentions (Wang et al., 2020).
- Assess their perception of the factors influencing these decisions.

In a consumer survey, respondents can usually choose from six options: Very good (++); slightly better(+); No change(=); a little worse(-); much worse (--); don't know(N). The questions were therefore designed around four issues: the financial situation of the households, the general economic crisis, savings, and the intention to make large purchases. The reference period is 12 months.

Theories of the Stock Market Index

The stock market index is a statistical value that reflects the State of the stock market. The stock portfolios will be aggregated according to the calculation methods to form a stock market index. Usually, stock portfolios will be set up so that the stocks must have certain things in common, such as duplicate listing on the same stock exchange, industry, or market capitalization,... A country stock index will represent the stock market's performance in a country and reflect investor sentiment on the State of the economy. Thereby, securities investors or market managers can make reasonable investment decisions (Yeyanran & Qiang, 2016).

Related studies on stock index measurement methods

(1) CAPM model: Economists William Sharpe, John Lintner, and Jack Treynor developed the Capital Asset Pricing Model (CAPM) to forecast the return of security through its beta value. The CAPM model is considered adequate and applied by many researchers. The CAPM model has been supplemented with other factors to predict the return rate more accurately. In the CAPM model, besides Beta, there are variables such as the price-to-earnings (P/E) ratio and market-to-book value (PBV) (Zheng et al., 2021; Insawan et al., 2022).

(2) Fama and French model: With the research results in 1993, Fama and French built a model of 3 Fama-French factors, including scale factor, BE/ME factor, and market factor. The model is as follows: E(Ri): return for the portfolio I; Rf: risk-free return; E(RM): the expected return of the whole market; si: regression coefficient for factor SMB

SMB: is the historical average of small company stock portfolio return minus significant company stock portfolio return. HML: is the historical average of high (book value/market) return minus low (book value/market) portfolio return. βi: regression coefficient for the risk premium factor of the stock portfolio. Fama French's model in the US market during 1963-1991 showed a negative relationship between size and average rate of return and a positive correlation of BE/ME with the average rate of return.

(3) The empirical model of Long & Lu (2010) built the model on NYSE, AMEX, and NASDAQ from January 1972 to December 2006 as follows: rf: Risk-free rate of return: coefficients measuring the sensitivity of the rate of returns: market risk premium, investment allocation, rate of return premium on total assets. The author concluded that the expected rate of return has a negative relationship with investment in I/A assets, asset growth with the ME/BE ratio, and past long-term revenue growth. In addition, the author also believes that the rate of return on investment has a positive relationship with ROA.

Theories of the public administration

Concept of public administration: Public governance is the interactive process between external and internal actors that design and implement policies within a set of formal and informal rules shaped by authority (World Bank, 2017). Public governance includes traditional values, norms, and institutions through which power in a country is exercised (Kaufmann et al., 2011).

Related studies on the method of calculating integrated public administration

(1)The World Public Governance Index (WGIs) consists of six components: Voice and accountability (VA), Political stability and absence of violence/terrorism (PV), Effectiveness Government effectiveness (GE), Regulatory Quality (RQ), Rule of Law (RL), Control of Corruption (CC).

(2) Kaufmann et al. (2011) show the benefits and effectiveness of principal component analysis (PCA) when synthesizing component public governance variables.

Since public governance can indirectly affect all socioeconomic activities of any country, applying principal component analysis (PCA) is necessary to synthesize different factors and form an impact variable to study the relationship between the consumer confidence index and the stock market index.

Relationship between the consumer confidence index and stock market index

There are many studies on the impact of consumer confidence and specific stock indexes:

Jos & Niek (2003) used data from 11 European countries, including Belgium, Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Spain, Portugal, and the UK. Data from January 1986-August 2001, excluding Greece from 1988-10/2001, Portugal from 1988-1/2001, and Spain from 1986-7/2001. The author uses Granger causal model to determine the relationship between CCI and SMI. Research results show that stock returns and changes in sentiment are positively correlated for nine countries: Belgium, Denmark, France, Switzerland, Italy, Netherlands, Spain, Portugal, USA, excluding Germany and UK.

Chih-Chiang (2011) used monthly panel data for 21 countries from 1999 to 2007. The author used FE, MG, the cointegration test, and the Granger causality method to analyze the data and determine the relationship between CCI and SMI. The research results show that there is no long-term relationship between the stock index and the consumer confidence index, but only a short-term relationship;

Willem (2019), using the S&P 500 index, the University of Michigan consumer sentiment index, and the Granger test, confirmed that the CCI and SMI are highly correlated and change occasionally. In addition, the study also shows that in the crisis period, these two indicators are more closely linked than in the standard period;

Koy & Akkaya (2017) used real-world monthly data from January 2007 to June 2016. Using Markov vector autoregressive models (MS(M)-VAR (p)). The results show that stock returns impact the S&P 500 price index and that market pessimism has a more considerable impact on stock returns during bear markets.

Vichet (2014) uses monthly data from 31 countries. The sample size is large at 7206 monthly observations of the countries. Least squares regression (OLS) was used to estimate coefficients related to consumer confidence, and the data were pooled together for regression analysis. The results show that consumer confidence positively affects stock market returns.

Kenneth & Meir (2003) used AR time series models for consumer confidence data series from January 1978 to December 2002 (University of Michigan) and from May 1977 to December 2002 (Conference Board) and stock index data of the S&P 500, Small - Cap and Nasdaq from 1995 to 2002 by month, 6 months and 12 months. The author believes a negative relationship exists between consumer confidence and stock returns in the next month, 6 months, and 12 months. Although there is a negative relationship between consumer confidence and future stock returns, there is a statistically significant relationship between changes in consumer confidence and stock returns. Stocks at the same time that high stock yields boost consumer confidence.

Deepa (2020) used monthly data on Indonesia's stock index returns and consumer confidence index from Datastream and FRED Economic Data. The sampling period of the data is from March 2003 to April 2019. The author uses a time series regression model and shows that changes in consumer sentiment do not predict excess returns over the Indonesian market index. However, the author believes that lagged changes in consumer sentiment will positively predict stock returns in three sectors: oil, gas, consumer goods, and consumer services.

METHODOLOGY

Research by Nitin et al. (2017) and Vichet (2014) use an econometric approach using the VEC model to determine the relationship between the consumer confidence index and the stock market index. Stock Exchange of India and 31 countries around the world. In this study, the authors inherit the above 02 studies and plan to use the P.VAR model to solve the set objectives. The expected model is as follows: SMIt: stock index. CCIt: consumer confidence index. PCA: public governance index synthesized from six component variables. µi: is a surplus

The composite public administration (PCA) variable from six components of the ten countries above includes (1) Voice and accountability-VA, (2) Political stability and absence of violence/terrorism-PV, (3) Government effectiveness-GE, (4) Regulatory Quality-RQ, (5) Rule of Law-RL, (6) Control of corruption-CC, these variable measures the impact on the relationship between the stock market index and consumer confidence index.

Research data: Collect secondary information from the OECD, World Bank, ANZ, and Roy Morgan banks, national statistical agencies, and some other international organizations from 2012 to 2021.

Middle-income countries: 3 upper-middle-income countries (China, Thailand, Malaysia) and 7 lower-middle-income countries (Vietnam, India, Philippines, Indonesia, Egypt, Morocco, Pakistan).

Research method: with the set goal, the appropriate form used by the group is the P.VAR model.

RESULTS AND DISCUSSION

High Middle-Income Countries: Stationary Test and Non-Stopped Series Fix

Table 1: Stationary test and non-stopped series fix

Variable	ADF	1% significance level	5% significance level	10% significance level	P. value	Result
CCI	-3.7217	-3.6793	-2.9678	-2.6230	0.0036	The chain stops
SMI	-1.9542	-4.3098	-3.5742	-3.2217	0.6080	The chain doesn't stop
CCI_PCA	-1.8774	-3.6793	-2.9678	-2.6230	0.3377	The chain doesn't stop
SMI_PCA	-2.2447	-4.3098	-3.5742	-3.2217	0.4489	The chain doesn't stop

Source: Prepared by the authors (2023)

Table 1 shows the analysis of the stationarity test through graph analysis, analyzes autocorrelation function and autocorrelation diagram, unit root test, and @trend variable regression to consider trend calculation for CCI variable, SMI, CCI _PCA, and SMI _ PCA. The author uses the Augmented Dickey-Fuller test to test the stopped series of the variables in the study.

Table 2: Differentiates the non-stopped variables and conducts the stationarity test

Variable	ADF	1% significance level	5% significance level	10% significance level	P. value	Result
CCI	-3.7217	-3.6793	-2.9678	-2.6230	0.0036	The chain stops
DSMI	-5.4650	-4.3240	-3.5806	-3.2253	0.0007	The chain stops
DCCI_PCA	-4.3862	-3.6892	-2.971 9	-2.6251	0.0018	The chain stops
DSMI_PCA	-5.2565	-4.3240	-3.5806	-3.2253	0.0011	The chain stops

Source: Prepared by the authors (2023)

Table 2 shows that the variables are still non-stopped series. The author differentiates the non-stopped variables and conducts the stationarity test. Therefore, the author will perform

a differential for the SMI, CCI_PCA, and SMI_PCA. After serving the first difference, the SMI, CCI_PCA, and SMI_PCA became stopped data series. The p-value is very small < = 10% or the absolute value of the statistics of the variable SMI, the variable CCI_PCA and SMI_PCA > the value at 1%, 5%, and 10% significance level, so the hypothesis Ho is not accepted, that SMI series, CCI_PCA series, and SMI_PCA series have no unit root. Thus, the SMI, CCI_PCA, and SMI_PCA series are stopped data series. Therefore, variables DSMI, DCCI_PCA, and DSMI_PCA can be included in the P.VAR model for estimation.

Table 3: Implementation of the P.VAR model for finding the optimal delay

lag	LogL	LR	FPE	AIC	SC	HQ
0	-703.5633	-	4.50e+19	56.6051	56.80001*	56.6592
1	-679.5633	38.3999*	2.43e+19	55.9651	56.9402	56.2355
2	-659.6464	25.4936	1.99e+19	55.6517	57.4069	56.1385
3	-646.4240	12.6935	3.40e+19	55.8739	58.4092	56.5771
4	-611.3907	22.4213	1.56e+19*	54.3513*	57.6666	55.2708*

Source: Prepared by the authors (2023)

Table 3 shows that the author estimated and found the optimal delay. It was found that the suitable optimal delay is 4.

Table 4: Implementation of the P.VAR model for the Granger causality test

	Granger's Value
Ho: DSMI has no Granger relationship with CCI	0.3574
Ho: CCI has no Granger relationship with DSMI	0.2831
Ho: DSMI_PCA has no Granger relationship with CCI	0.5025
Ho: CCI has no Granger relationship with DSMI_PCA	0.0751
Ho: DSMI has no Granger relationship with DCCI_PCA	0.6397
Ho: DCCI_PCA has no Granger relationship with DSMI	0.1601

Source: Prepared by the authors (2023)

Table 4 shows that the authors are looking at the parameters above. The author has grounds to confirm that: (1) DSMI has a Granger relationship with two-way CCI, (2) DSMI_PCA has a Granger relationship with two-way CCI, (3) DSMI has two-way Granger to DCCI_PCA relationship.

Estimating the P.VAR. The model estimation results at lag 4 are as follows:

CCI=0.3626*CCI(-1)-0.3111*CCI(-2)-0.0294*CCI(-3)+0.4258*CCI(-4)+0.0034*DSMI(-1) +0.0056*DSMI(-2)+0.0030*DSMI(-3)+0.0034*DSMI(-4)-0.0014*DSMI_PCA(-1)+0.0015*DSMI_PCA(-2))+0.0008*DSMI_PCA(-3)+ 0.0015*DSMI_PCA(-4)+ 40.8190

and

DSMI=-111.6360*CCI(-1)-2.3667*CCI(-2)-6.5504*CCI(-3)+85.2640*CCI(-4)-0.2070*DSMI(-1)-0.1231*DSMI(-2)-0.2175*DSMI(-3)+0.0777*DSMI(-4)-7.4885*DCCI_PCA(-1)-13.4395*DCCI_PCA(-2)-30.4417*DCCI_PCA(-3)+ 12.6988*DCCI_PCA(-4) +3899.2288

Table 5: Analysis of the decomposition of variance

Stage	SE	CCI	DSMI	DSMI_PCA
1	14.7693	100.0000	0.0000	0.0000
2	16.2510	98.1007	0.2608	1.63853
3	17.4498	87.3276	10.1833	2.4891
4	18.6077	76.9185	19.7348	3.3467
5	19.2988	71.5135	20.5618	7.9247
6	19.6512	69.9424	20.0739	9.9837
7	20.3561	65.6215	20.8409	13.5376
8	20.9112	65,7503	20.3952	13.8545
9	21.3236	64.6450	20.5761	14.8789
10	21.5238	64.8917	20.2325	14.8757
Stage	**SE**	**DSMI**	**CCI**	**DCCI_PCA**
1	2981.7920	39.1084	60.8916	0.0000
2	3221.0600	45.5413	52.3863	2.0724
3	3410.4830	40.6239	46.7430	12.6332
4	3638.2090	35.6988	41.0827	23.2185
5	4424.9670	30.7690	38.5086	30.7224
6	4461.7380	31.3161	38.3025	30.3815
7	4507.9650	30.7633	37.8515	31.3851
8	4560.6990	31.9037	37.1942	30.9021
9	4590.1880	31.9370	37.4526	30.6104
10	4597.1180	31.9138	37.5290	30.5573

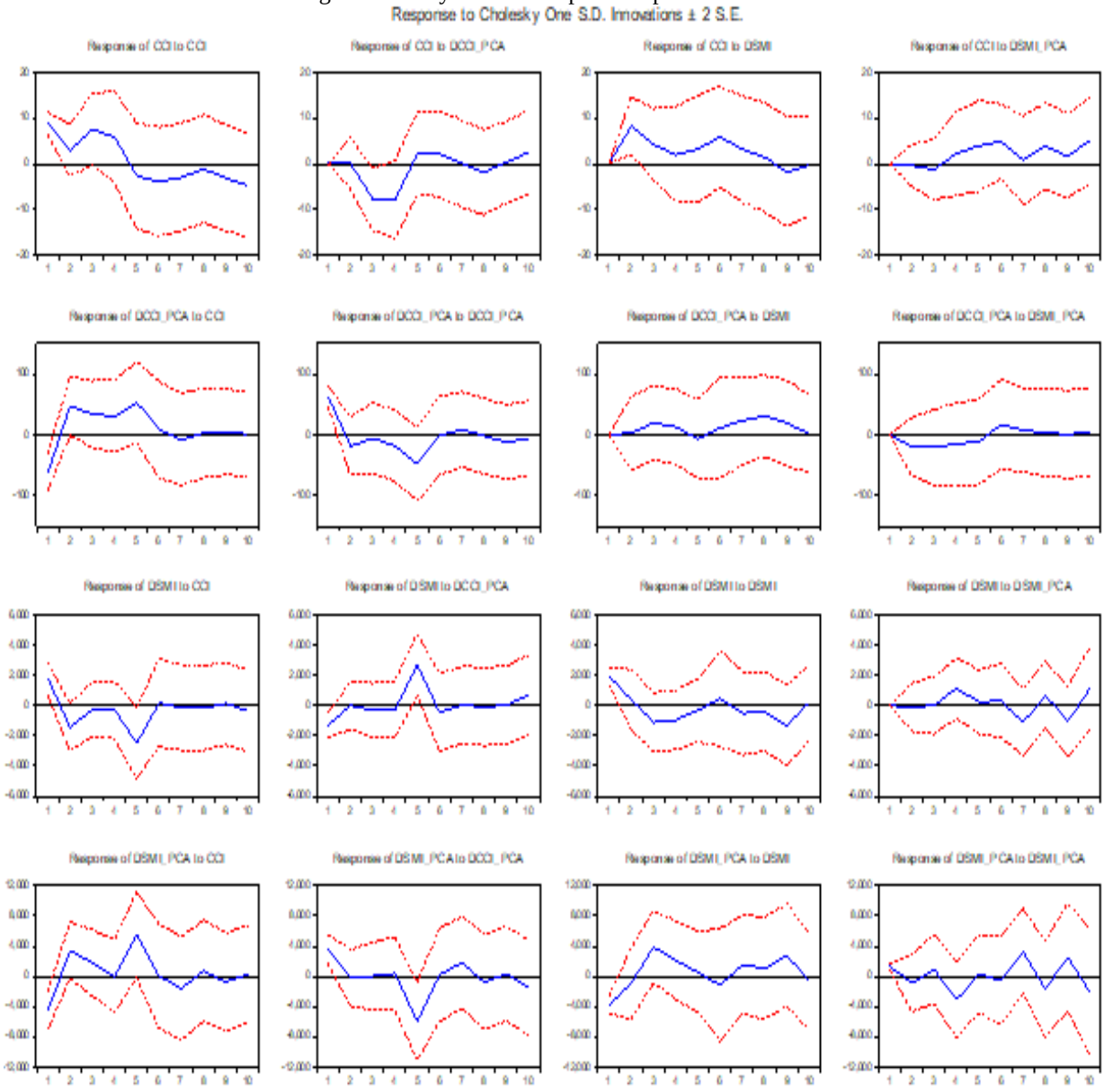
Source: Prepared by the authors (2023)

Table 5 shows that the author considers the decomposition of variance to measure the effect of shocks of CCI and DSMI. The results show that the CCI shock depends on itself in the first period. The DSMI shock in the first period contributed 60.8916% to itself. The rest was the CCI shock affecting 39.1084% of the DSMI, while the PCA-modulatory variable affected 2%. However, by the 2nd period, the CCI shock contributed to 98.1007% of itself, and the DSMI shock affected 0.2608% of the CCI shock, but the PCA moderator contributed 1.6385%. This shows that in the beginning, the CCI shock is influenced by itself, but in the long run, the additional effect of the DSMI shock and the PCA moderator shock is approximately 15%.

In the long term, the ratio of the impact of CCI shock on DSMI gradually increases, while the DSMI shock on itself gradually decreases, and the effect of PCA also gradually

increases to 30.5573%. Thus, for high-middle-income countries, the impact of SMI on CCI is not as strong as that of CCI on SMI, and in both cases, the variable of public governance plays a moderating role in regulatory on variables; however, the part of shared governance is most substantial in the case of the impact of CCI on SMI. In addition, the CCI and SMI themselves are also influenced by the past itself, even all 4 periods in history.

Figure 1: Analysis of the impulse response function



Source: Prepared by the authors (2023)

Figure 1 shows that the author uses the push response function IRF to consider the effects of CCI and SMI variables shocks. The following results: First, the value of CCI in the past decreases, and the current CCI also reduces. From year 2 to year 3, it tends to increase

gradually. In year 4, it falls, and in year 5, it stabilizes. Second, the shock from the past SMI strongly affects the current SMI, which is more stable in year 4. Third, the stunner from SMI harms CCI in the first 2 years.

Source: Prepared by the authors (2023)

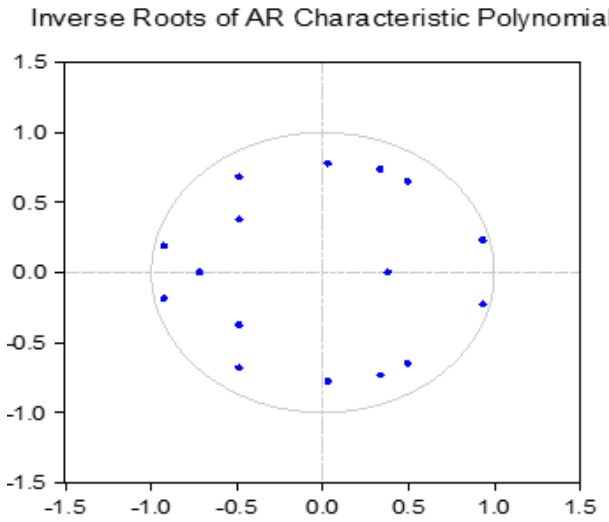


Figure 2: Stability of the model

Figure 2 shows that the author found that the solutions are all inside the unit circle, and no explanation exists. This can confirm that the P.VAR model is stable. Starting from year 3, the impact of SMI on CCI tends to be the same, and the variable of public governance also has a positive effect on CCI from year 3 onwards. Fourth, when a shock from the CCI decreases, the SMI decreases and vice versa. In other words, CCI has a positive effect on SMI. However, the public governance variable tends to be in the opposite direction from SMI, but by the 5th year, it tends to moderate in the same direction as SMI.

Low Middle-Income Countries: Stationary Test and Non-Stopped Series Fix

Table 6: Stationary test and non-stopped series fix

Variable	ADF	1% significance level	5% significance level	10% significance level	P. value	Result
CCI	-8.3534	-3.5300	-2.9048	-2.5899	0.0000	The chain stops
SMI	-2.5154	-4.0966	-3.4763	-3.1656	0.3201	The chain doesn't stop
CCI_PCA	-3.0203	-4.0966	-3.476 3	-3.1656	0.1343	The chain doesn't stop
SMI_PCA	-2.0357	-4.0966	-3.476 3	-3.1656	0.5716	The chain doesn't stop

Source: Prepared by the authors (2023)

Table 6 shows the analysis of static testing through graph analysis, analyzes autocorrelation function and autocorrelation plot, unit root test, and trend regression @trend for variables CCI, SMI, and CCI_ PCA and SMI_PCA. We use the Augmented Dickey-Fuller test to test the stationary series of variables in the study.

Table 7: Differentiates the non-stopped variables and conducts the stationarity test

Variable	ADF	1% significance level	5% significance level	10% significance level	P. value	Result
CCI	-8.3534	-3.5300	-2.9048	-2.5899	0.0000	The chain stops
DSMI	-8.3053	-4.0987	-3.4773	-3.1662	0.0000	The chain stops
DCCI_PCA	-7.8608	-4.1009	-3.4783	-3.1668	0.0000	The chain stops
DSMI_PCA	-8.0417	-4.0987	-3.4773	-3.1662	0.0000	The chain stops

Source: Prepared by the authors (2023)

SMI, CCI_PCA, and SMI_PCA became stopped data series after the author made the first difference. Table 7 shows that the author will perform differential for SMI, CCI_PCA, and SMI_PCA. Minuscule p-value = 0.0000 < =10% or absolute value of the statistic of variable SMI, variable CCI_PCA, and SMI_PCA > values at 1%, 5%, and 10% significance level, so we do not accept the hypothesis Ho that the series SMI, CCI_PCA, and SMI_PCA have no unit root, that is, the series SMI, CCI_PCA, and SMI_PCA is a stop sequence. Therefore, variables DSMI, DCCI_PCA, and DSMI_PCA can be included in the P.VAR model for estimation.

Table 8: Implementation of the P.VAR model for finding the optimal delay

lag	LogL	LR	FPE	AIC	SC	HQ
0	-1627.1380	-	3.62e+17	51.7822	51.9182	51.8357
1	-1558.4130	126.5410*	6.80e+16*	50.1083*	50.7887*	50.3759*
2	-1550.4990	13.5668	8.85e+16	50.3650	51.5897	50.8467
3	-1538.3230	19.3263	1.02e+17	50.4865	52.2554	51.1822
4	-1533.3730	7.22847	1.49e+17	50.8373	53.1505	51.7471
5	-1524.9320	11.2556	1.99e+17	51.0772	53.9347	52.2011
6	-1520.7330	5.0656	3.13e+17	51.4518	54.8536	52.7898

Source: Prepared by the authors (2023)

Table 8 shows that the author estimated and found the optimal delay. It was found that the suitable optimal delay is 1.

Table 9: Implementation of the P.VAR model for the Granger causality test

	Granger's Value
Ho: DSMI has no Granger relationship with CCI	0.9109
Ho: CCI has no Granger relationship with DSMI	0.5208
Ho: DSMI_PCA has no Granger relationship with CCI	0.8660
Ho: CCI has no Granger relationship with DSMI_PCA	0.7410
Ho: DSMI has no Granger relationship with DCCI_PCA	0.9019
Ho: DCCI_PCA has no Granger relationship with DSMI	0.8274

Source: Prepared by the authors (2023)

Table 9 shows that the authors are looking at the parameters above. The author has a basis to confirm that: (1) DSMI has a Granger relationship with CCI in both directions, (2) DSMI_PCA has a Granger relationship with CCI in both directions. (3) DSMI has a Granger relationship with DCCI_PCA in both directions. By testing the latency of the P.VAR model, the author decided to use the model at lag 1. The estimated results are as follows:

CCI= 0.8546*CCI(-1) + 0.0006*DSMI(-1) - 0.0006 * DSMI_PCA(-1) + 11.1400

DSMI= -0.7349*CCI(-1) -0.0334*DSMI(-1) + 0.1845* DCCI_PCA(-1) + 54.3290

The below results showed that in the beginning, the CCI shock is affected by itself, but in the long run, the additional effect of the DSMI and PCA shock is approximately 0.038% but not too significant. The DSMI shock in the first period contributed 100% to itself. In the long run, the ratio of the impact of CCI shock on DSMI gradually increases, while the DSMI shock on itself gradually decreases, and the impact of PCA also increases slowly, but these effects are also insignificant.

Table 10: Analysis of the decomposition of variance

Stage	**SE**	**CCI**	**DSMI**	**DSMI_PCA**
1	23.2872	100.0000	0.0000	0.0000
2	30.6597	99.9695	0.0107	0.0199
3	35.0657	99.9576	0.0140	0.0284
4	37.9556	99,9520	0.0156	0.0324
5	39.9230	99.9488	0.0166	0.0347
6	41.3093	99.9469	0.0171	0.0360
7	42.2861	99.9456	0.0175	0.0370
8	42.9838	99.9448	0.0177	0.0375
9	43.4853	99.9442	0.0179	0.0380
10	43.8470	99.9437	0.0180	0.0383
Stage	**SE**	**DSMI**	**CCI**	**DCCI_PCA**
1	397.4871	100.0000	0.0000	0.0000

2	398.5688	99.6970	0.2335	0.0696
3	398.7741	99.6107	0.3195	0.0698
4	398.9323	99.5434	0.3867	0.0698
5	399.0463	99.4952	0.4350	0.0698
6	399.1288	99.4603	0.4699	0.0698
7	399.1884	99.4351	0.4956	0.0698
8	399.2315	99.4169	0.5133	0.0698
9	399.2627	99.4038	0.5264	0.0698
10	399.2852	99.3943	0.5359	0.0698

Source: Prepared by the authors (2023)

Table 10 shows that the authors considered the decomposition of variance to measure the effects of CCI and DSMI shocks. The results show that the CCI shock depends on itself in the first period. However, by the 2nd period, the CCI shock contributed to 99.9695% influence on itself, the DSMI shock only affected 0.0107% of the DCCI shock, and PCA contributed to an effect of 0.019%.

Source: Prepared by the authors (2023)

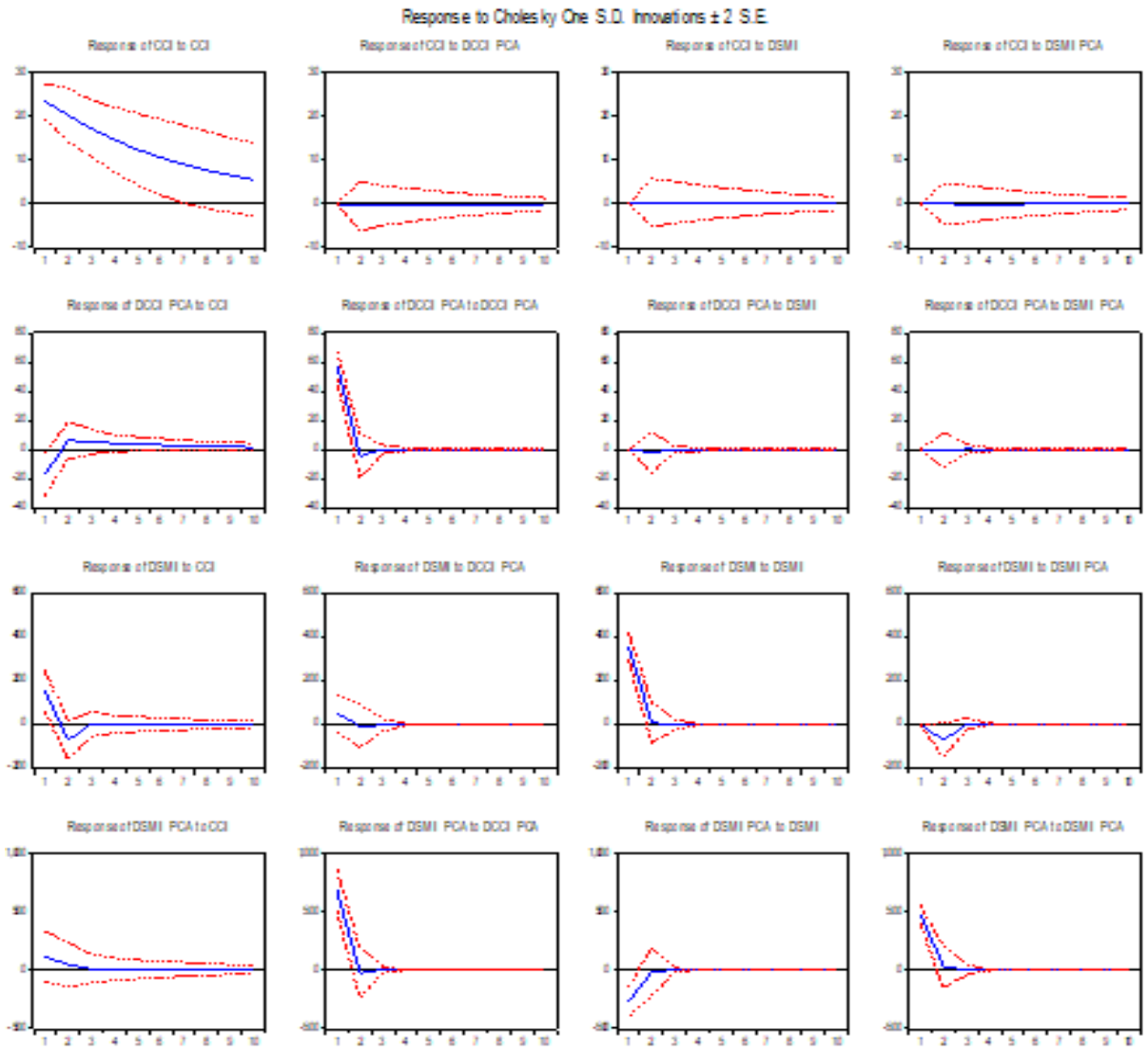
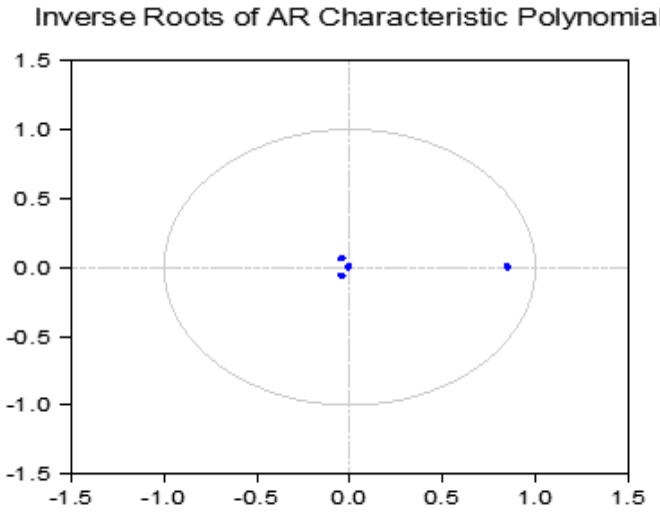


Figure 3: Analysis of the impulse response function

Figure 3 shows that the author uses the push response function IRF to consider the effects of CCI and SMI variables shocks. The following results: Firstly, if the past CCI value decreases, the current CCI will also decrease, tending to decline. Second, the decrease in the value of the past SMI affects the current SMI in the first 2 years. It tends to increase in year 3 but is stable in year 4. Third, shocks from SMI and PCA affect CCI, but the extent of the impact is unclear. Fourth, when a shock from CCI, PCA decreases, SMI decreases, and vice versa. In other words, CCI has a positive impact on SMI with PCA. Public governance and consumer confidence tend to have the same direction as SMI.

Figure 4: Stability of the model



Source: Prepared by the authors (2023)

Figure 4 shows that the author found that the solutions are all inside the unit circle, and no explanation exists. This can confirm that the P.VAR model is stable.

Governance Implications

The author has used the P.VAR model to accomplish the goal of testing the two-way reciprocal relationship between CCI and SMI in the period 2012 to 2021. The research results show that there is a secret causal relationship positive relationship between consumer confidence and the stock market index in the survey period. In addition, the shocks of the past CCI and SMI values also affect the current CCI and SMI values. This shows that when consumer confidence is in a positive direction, the SMI will be in a positive order and vice versa.

The results show that public governance, including voice and accountability, political stability, government effectiveness, quality of the rule of law, and management of law corruption control, has a positive impact on the trust relationship between consumer news and significant stock market indexes, therefore, suggest the following implications: (1) Governments must increase their accountability to the people and investors for all activities and decisions of the Government. (2) Creating a stable political environment, prioritizing dispute settlement by peaceful negotiations. (3) Reviewing institutions, regulations, and laws in line with international law to ensure favorable interests for investment parties. (4) Well-control corruption in their country.

CONCLUSION

With data from three high-middle-income countries and seven low-middle-income countries from 2012 to 2021. Results obtained from testing the stability of the P.VAR model and analysis. The push reaction analysis shows that the solutions are all inside the unit circle, so the author can confirm that applying the P.VAR model with the delay is stable and appropriate. The model is as follows:

(1) For high-middle-income countries, consumer confidence impacts the stock market index, and the stock index and vice versa also impact consumer confidence. The model is built as follows in the high-middle-income countries the author is considering, governance positively affects the close relationship between consumer confidence and the stock market index. The past CCI value has an influence on the current CCI value. Specifically, if the past CCI value decreases, the current CCI will also decrease; from year 2 to year 3, it tends to increase gradually, year 4 decreases, and by year 5 begins to stabilize. When there is a shock from a reduction of CCI, the SMI decreases and vice versa. The shock from the past SMI strongly affects the current SMI. It is more stable in year 4. The shock from SMI has the opposite effect on CCI in the first 2 years. Starting from year 3, the impact of SMI on CCI tends to have the same direction, and the public governance variable also has a positive effect on CCI from year 3 onwards, and the degree of influence on CCI gradually increases to 14.8757%. In other words, CCI has a positive impact on SMI. However, the public governance variable tends to be opposite to SMI, but by the 5th year, it tends to moderate in the same direction as SMI and gradually increases the influence to 30.5573%.

(2) For low-middle-income countries, consumer confidence impacts the stock market index and vice versa. The stock market index also has an impact on consumer confidence. For

the low-middle-income countries the author is considering, public governance has an insignificant effect on the close relationship between consumer confidence and stock market indexes. This result shows that general management has a positive impact on the relationship between consumer confidence and the stock market price index in high-middle-income countries, which means: Voice and Accountability: Government speech and accountability to the people of their country make investors more confident in the Government, in the country and the activities that the Government brings. Political stability: Countries with stable politics will create peace of mind in business activities. Government efficiency: When the Government implements national governance, achieving efficiency in all aspects will inevitably make investors believe in their country's activities, such as increasing investment in their stock market. Quality of law: The more transparent the regulations, institutions, and rules, fully binding the rights and obligations of the parties legally, the better it will be for the people. Investors trust to carry out their investment activities. The rule of law: A state for the people, equality, peace, and development will create a good investment mentality. Control corruption: A country that controls corrosion well will increase trust and attract capital from domestic and international investors. As for the group of low-middle-income countries, public governance does not have much influence on the relationship between consumer confidence and the stock market index. From the research results, the authors propose policy implications for middle-income countries for investors' confidence and investment activities on the stock market, contributing to boosting capital in the future and making the economy more efficient.

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