Impact of The People's Business Credit Program on the Jakarta Composite Index

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Introduction

Background

At the heart of this study is the fundamental question: how do Indonesian People's Business Credit Loans impact the movement of the Jakarta Composite Index? As defined by the OECD, the Peoples Business Credit Loan Program, or Kredit Usaha Raykat (KUR) in Indonesian, it's a microcredit program that combines a loan guarantee with an interest rate subsidy that allows banks to lend to small and medium enterprises (SME) at a capped interest rate. The OECD shows that the KUR Programme has proven successful in increasing the credit flow to SMEs.

The Jakarta Composite Index (JCI) is an index tracking the 895 securities listed on the Indonesia Stock Exchange (IDX). The IDX, based in Jakarta, Indonesia, was formerly known as the Jakarta Stock Exchange until a merger in 2007 with the Surabaya Stock Exchange, prompting the name change. As of July 2023, according to data from Investing.com, the official market cap of the Indonesia Stock Exchange is $670 Billion. As of December 2020, the IDX market cap accounted for 45.2% of the country's nominal Gross Domestic Product (GDP).

Research Question

In this document, the correlation between the Jakarta Composite Index and the People's Business Credit loans is examined thoroughly. I suggest through review of the findings that there is a very noticeable correlation between the amount of loans in circulation and the overall growth of the Jakarta Composite Index. While this could be for a variety of reasons, I hypothesise that the increase in loans in the business ecosystem increases the overall value of enterprises. Even though the loan is targeted toward small and medium enterprises, the increase in the market value of that segment of business likely has an effect on the value of large enterprises such as those listed on the Indonesia Stock Exchange as well.

Overview

The methodology of this study involves the implementation of linear regression to analyze the data presented and formulate a conclusion. Various websites were used in the sourcing process of the data pertaining to the People's Business Credit Loans, including those of the OECD, the Central Bank of Indonesia, and Bank Negara Indonesia. The data selected consisted of 79 entry points of monthly loan circulation starting on January 1st, 2016, and ending on July 1st, 2022. The data pertaining to the Jakarta Composite Index was mainly sourced from Investing.com. The data selected also consisted of 79 entry points of monthly index price starting January 1st, 2016, and ending on July 1st, 2022. The data was then entered and sorted appropriately into Microsoft Excel, which was also used to run the regression. Conversion rates from the Indonesian Rupee to the United States Dollar were also run with the respective monthly exchange rates for each data point. As a result, numerical data was produced alongside two charts. The first chart produced was a line of best-fit charts between the Jakarta Composite Index and People's Business Credit loans. The other chart produced was an adjusted loan residual plot.

There were a few data points that were significant in the findings of this study. The R-Squared of the regression ended up being approximately 0.3248. This is to say that about 32% of the movement of the Jakarta Composite Index can be explained by the People's Business Credit loans. This is significant because even with all the other variables that could be included, a sizable portion of movements in the JCI can be correlated with the amount of People's Business Credit loans in circulation. I report a p-value of 0.000, therefore, I reject my null hypothesis that the increase in People's Business Credit loans has no effect on the price of the Jakarta composite index. This is significant because it allows us to state that these results have statistical significance.

The results of this study provide potential insight into the effectiveness of the implementation of the People's Business Credit loans on the Indonesian economy overall. This flow of capital throughout the small and medium business ecosystem has promoted trade, increased purchasing power, and encouraged the expansion of businesses of that category, therefore having an effect on business as a whole. Through the data and visuals that resulted from this experiment, that statement can be backed confidently. The results of this study can be used to further understand the economic dynamics in the Indonesian economy. It can also help conclude implications for policymakers and investors on which to base their strategies going forward. Both of these applications for this study will be expanded upon in the following paragraphs.

Significance of the Study

The results of this study can help formulate a general synopsis of the economic dynamics in the Indonesian economy. The implementation of a program aimed at helping small and medium-sized businesses can have an effect on the prosperity of the business economy as a whole, including the larger cap businesses that wouldn't qualify to participate in the program. A large portion of businesses in Indonesia fall into the range of small to medium-sized businesses. What this means is that a large portion of businesses that otherwise wouldn't have easy access to capital, now do and larger businesses that have excess capital have another investment option that is backed by the government. From these assumptions, we can understand why a program like the People's Business Credit would thrive in an economic environment like Indonesia's.

What does this mean for policymakers and investors in Indonesia and globally? The results of this study indicate that properly aligning incentives for investment into the emerging part of an economy could prove to be a not only viable but extremely effective strategy to increase the value of the economy overall. For policymakers, this could mean following in Indonesia's footsteps and providing government backing for investment into small and medium-sized businesses or even tax incentives on such investments. For investors, this could be an indicator that when properly allocated, capital invested in these businesses could yield not only direct return on investment, but indirect returns such as economic growth, more consumer spending power, and stronger increases in valuation of businesses of all sizes across all sectors.

Methodology

Data Collection

The process of sourcing the data involved research over the span of multiple sessions. Due to the importance of data accuracy and credibility in a study, only well-known or government and non-government organizational websites were used to source data. The historical data for the Jakarta Composite Index was sourced from Investing.com. The data for the People's Business Credit loans came from the OECD website, the central bank of Indonesia, Bank Indonesia, website, Bank Negara Indonesia website, and the program's own website Kredit Usaha Rakyat.

For the Jakarta Composite Index, organized historical data of index prices on the first of every month were needed. The source used for this data is Investing.com. The data was organized and proved accurate after some due diligence, including cross-referencing other websites and examining the overall credibility of Investing.com. A total of 79 data points were collected. The data consisted of closing prices of the Jakarta Composite Index on the first of every month from January 2016 to July 2022. The data was exported into its own sheet within the Microsoft Excel sheet that was used for the experiment.

The collection of the data for the People's Business Credit was much more intense. Due to it being a foreign government program meant for institutions within the country, the sources and formatting of the information available are not exactly optimized for foreign researchers. With every potential resource found, due diligence had to be conducted on the credibility of the source and the reliability of the data before it could be included in the study. A post from the Bank Negara Indonesia was the first resource used. This was used for an initial understanding of the program, some initial figures of the loan amounts, and some ways that the bank specifically was helping to push the program. The next resource used was the OECD website. This was initially intended to be a source of raw data for the number of loans issued, but it ended up not being used in that way for reasons that will be explained further in the paragraph. On the OECD website itself, however, a PDF file was found titled *SME and Entrepreneurship Policy in Indonesia 2018.* It went into detail about entrepreneurship, the small and medium business environment, and specifically the impact of the People's Business Credit program in Indonesia. This was extremely useful in helping find historical facts on the implementation and effectiveness of the program that helped justify conducting the study in the first place. The final resource used was the website for the program itself. The Kredit Usaha Rakyat website had much more detailed and organized historical figures on loan amounts. It was for this reason that it was chosen as the better source for this data than the OECD. The monthly data went back to 2012 until 2023 and included figures such as loan amounts per sector and business size. The data was ready to be exported into Microsoft Excel. The entire website is in Indonesian, so navigating took a bit longer than normal. Overall, however, finding and extracting the proper data was surprisingly seamless.

Variables

The independent variable of this study was the United States dollar amount of loans issued per month of the People's Business Credit from January 2016 to July 2022.

This is because, in this experiment, the effect of the People's Business Credit on the Jakarta Composite Index is studied. The movements of the Jakarta Composite Index are being measured in accordance with the Jakarta Composite Index. The variation of the People's Business Credit is not dependent on other variables in this study.

The dependent variable of this study is the opening price in United States dollars of the Jakarta Composite Index on the first of every month from January 2016 to July 2022. This is because, in this experiment, the price is being observed to understand how it is influenced by the changes in the People's Business Credit number, the independent variable. The variation is dependent on the changes in the independent variable.

One other factor in this study is the exchange rate shift. The original data was sourced in the native currency of Indonesian Rupees. To better understand this study, all variables were exchanged to United States dollars using the exchange rate of the month and year of the data point. An example of the formula is given below. This data was sourced from Investing.com, which made it very easy to find monthly exchange rates for the date ranges we needed. These exchange rates were all imported into the Microsoft Excel document and all the variables were exchanged.

$$y = \frac{1}{J} \cdot C$$

where y is the USD amount of loans in circulation at the given month, J is the IDR/USD exchange rate, and C is the IDR amount of loans in circulation at the given month

Ex. (January 2016) in billions

$$60.24 = \frac{1}{13,846} \cdot 834,030.34$$

Regression Model

In this experiment, my study is based on two variables, along with the shift in exchange rates. The coefficient of this linear regression that is most important is the intercept coefficient. This will explain how much the Jakarta Stock Exchange price increases for every dollar of People's Business Credit loans added into circulation. This will also help aid in further understanding the strength of the correlation between the price of the Jakarta Composite Index and the amount of People's Business Credit loans in circulation.

Data Analysis

Presentation of Descriptive Statistics
After sourcing, all the data from this study was added into a Microsoft Excel sheet to be organized accordingly and prepared to run the regression. This resulted in a sheet with columns such as the following: loan (in billions of Indonesian Rupees) for the amount of People's Business Credit loans in circulation by that day, the price of the Jakarta Composite Index (in Indonesian Rupees) on that date, IDR/USD and USD/IDR for the monthly exchange rates used to convert the Indonesian Rupees to United States Dollars, adjusted loan for the monthly loan values adjusted to USD, and adjusted price for the monthly index price adjusted to USD. The adjusted price and adjusted loan columns, however, were the only ones used in the regression.

Regression Results

Presentation of Regression Outputs
After running the regression, multiple data points were given that gave tremendous insight into the correlation between the Jakarta Composite Index and the People's Business Credit. The R-squared of this study ended up being approximately 0.32. What this means is that 32% of the movement in the Jakarta Composite Index can be explained by the People's Business Credit. The constant (intercept coefficient) of this study ended up being approximately 0.19. This represents the value of the Jakarta Composite Index when the loan amount is set to 0. The slope coefficient of this study ended up being approximately 0.0029. This represents the change in the Jakarta Stock Exchange for every 1 unit (dollar) change in the loan amounts. What this means is that for every $1 of People's Business Credit loans issued, the Jakarta Stock Exchange will increase by $0.0029. The p-values of the intercept and adjusted loan variable respectively were approximately 0.000 and 0.000. The p-value of the intercept assesses whether the intercept significantly differs from 0. The p-value of the adjusted loan variable assesses whether there is enough evidence to suggest that the corresponding independent variable has a significant effect on the dependent variable.

Interpretation of Results
From the results of this study, it is safe to conclude that the People's Business Credit has some impact on the price of the Jakarta Composite Index. The r-squared was found to be 32%. It can also be concluded that for every $1 of People's Business Credit loans issued, the Jakarta Stock Exchange will increase by $0.0029. These points are represented in the visuals on the following pages.

People's Business Credit Effect on JCI Price
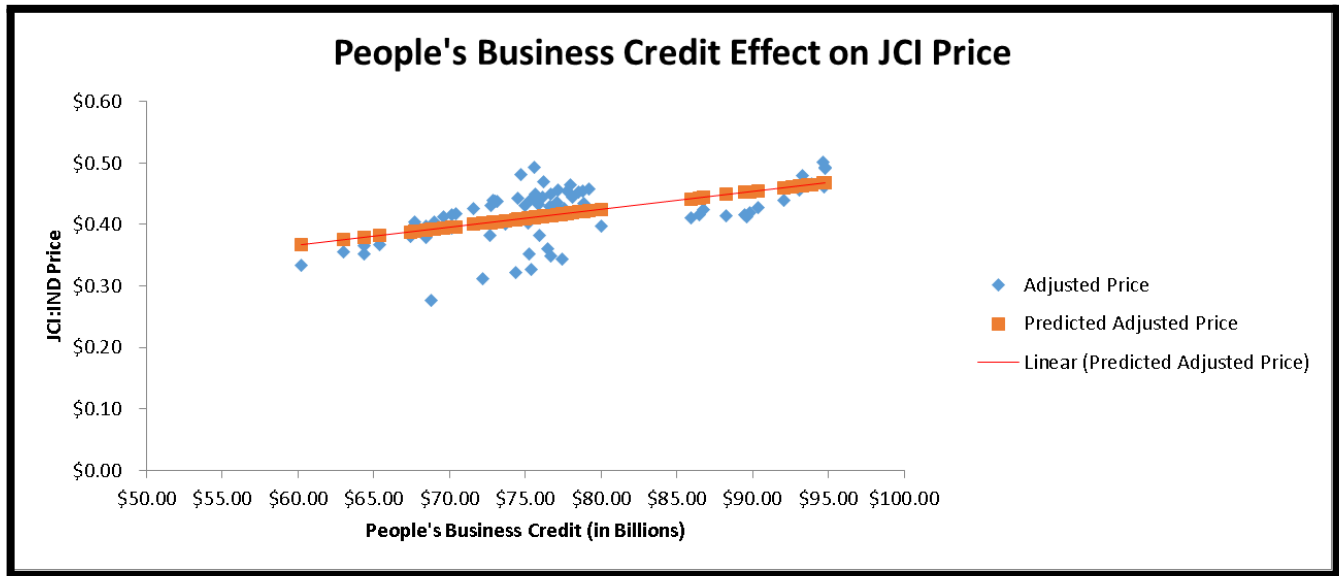
Discussion

Theoretical Implication

These results align with theories that suggest that investment in small and medium-sized businesses will have a positive effect on the overall economy. Investment in smaller businesses causes the individuals who own these businesses to have larger spending power to consume from larger companies, who are also getting a return on investing in the smaller businesses in the first place. However, this would most likely not be a viable solution if not for government backing. One of the main reasons that small to medium-sized enterprises are not as invested is because of the concern from investors about the security of their capital. They fear a lack of transparency from businesses causing them to make poor investment choices and potentially lose their investment in its entirety. The government backing solves this because now, these investors can get the returns of investing in emerging businesses without some of the risks that it entails.

These results could mean interesting things for investors and policymakers globally. Seeing how Indonesia's overall economy has benefited from the implementation of the People's Business Credit, this could be a sign for third-world and emerging economies that encouraging investment in the micro economy could be the way forward. For policymakers, this could mean aligning incentives so that institutional investors, who tend to have a small risk appetite, could view investing in the micro economy as a viable option. For investors, this could be proof that higher returns could be generated for business and the economy as a whole by investing in the micro economy. Not only would they get the direct return on investment, but the same people who own the small enterprises that they are investing in will most likely end up spending more money at the larger enterprises due to the increased spending power.

Conclusion

Summary of Findings

In conclusion, as the findings of this study suggest, the implementation of the People's Business Credit Program does have an effect on the Jakarta Composite Index. Data resulting from the regression shows that there is a noticeable r-squared between the number of loans issued and the price of the Jakarta composite index, at around 32%. The results of this study could be useful in justifying the idea of implementing this strategy in third-world and emerging economies globally. The results of this study could also be useful to investors who want to invest in the micro economy without the large risk to encourage policymakers to make it more viable to invest in a way that benefits the entire economy.

Appendix

Adjusted Loan Residual Plot
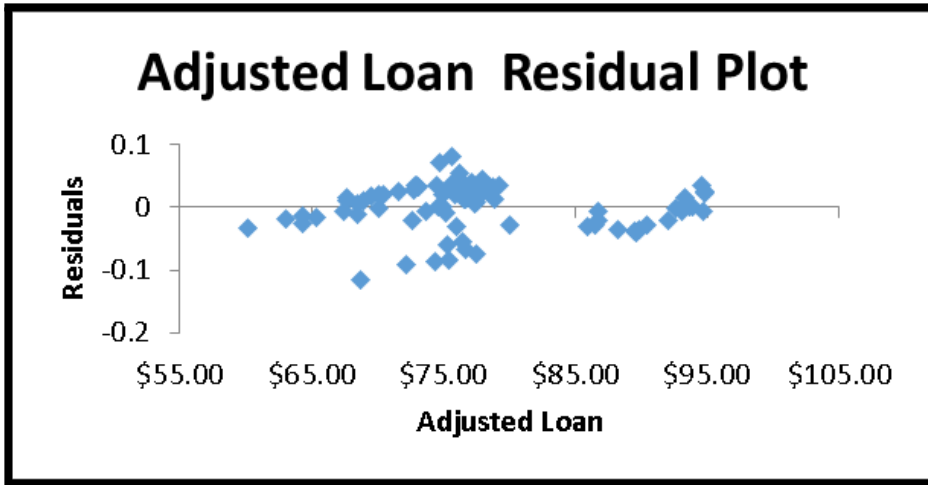
Residual Outputs

Observation	Predicted Adjusted Price	Residuals
1	0.36678629	-0.03347
2	0.374948025	-0.01877
3	0.378804101	-0.01383
4	0.381819347	-0.01537
5	0.378867914	-0.02655
6	0.387761122	-0.00714
7	0.388578332	0.009771
8	0.388484363	0.016484
9	0.39405661	0.018684
10	0.395754314	0.019734
11	0.390802383	-0.01117
12	0.395720295	-0.0015
13	0.390849909	0.00592

14	0.392352516	0.011236
15	0.396581856	0.021413
16	0.400001041	0.026599
17	0.403233272	0.027526
18	0.404544579	0.033154
19	0.404164452	0.034246
20	0.403698099	0.035524
21	0.404137911	0.033221
22	0.408467648	0.034045
23	0.411045695	0.029397
24	0.413490867	0.05563
25	0.411717818	0.080762
26	0.409071115	0.072232
27	0.411767604	0.038144
28	0.412423856	0.019557
29	0.414549456	0.014351
30	0.410418717	-0.00781
31	0.409950574	0.00193
32	0.408893239	0.00022
33	0.406097852	-0.00577
34	0.403016351	-0.02004
35	0.416759608	0.005593
36	0.415020791	0.012747
37	0.418532246	0.045721
38	0.422225053	0.035985

39	0.420998808	0.03314
40	0.417953213	0.036169
41	0.40988819	0.02175
42	0.41483593	0.034823
43	0.416296851	0.039321
44	0.413339397	0.031169
45	0.416069833	0.019171
46	0.419066899	0.025559
47	0.417382448	0.008928
48	0.420150203	0.033021
49	0.421275897	0.01351
50	0.4126764	-0.0296
51	0.391733906	-0.11441
52	0.401771784	-0.0906
53	0.408069246	-0.08542
54	0.417061932	-0.07408
55	0.41065694	-0.05922
56	0.414192021	-0.05426
57	0.411029139	-0.08458
58	0.414926517	-0.06583
59	0.424571122	-0.02732
60	0.444217879	-0.02032
61	0.443521477	-0.02728
62	0.444343146	-0.00568
63	0.441852091	-0.0311

64	0.448701181	-0.0343
65	0.452312799	-0.0367
66	0.452685028	-0.03978
67	0.453240019	-0.03436
68	0.454863278	-0.02699
69	0.459679554	-0.02025
70	0.463182285	0.00103
71	0.462786085	-0.00714
72	0.467477335	-0.00623
73	0.461416507	-0.00031
74	0.463370296	0.01594
75	0.467723957	0.025093
76	0.467244208	0.034137
77	0.467668467	0.023872
78	0.465227247	0.000262
79	0.464295762	0.000413

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