THE EFFECT OF SILICON VALLEY BANK'S BANKRUPTCY ON THE INDONESIAN STOCK EXCHANGE

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Abstract

The occurrence of bank failures can exert a substantial influence on worldwide stock markets, leading to disturbances within the financial system and influencing the confidence of investors. On March 10, 2023, Silicon Valley Bank (SVB) encountered a notable setback inside the expanding technological sector. In contrast to other scholarly investigations, this study aims to examine the repercussions of the collapse of the SVB on the financial sector in Indonesia by employing an event study methodology. The duration of the window period, sometimes referred to as the event window, is set at 7 days. A time frame of 200 days is employed for the purpose of estimating anticipated returns and deviations from the norm. The parametric t-test, specifically the paired sample test, was employed in our study. The results of our study indicate that the declaration of the Silicon Valley Bank Bankruptcy does not have any discernible impact on the Financial Sector in Indonesia. The aforementioned findings are consistent with the research conducted by Pandey et al. (2023), which suggests that the consequences of Silicon Valley Bank's failure were more significant in developed economies. The consequences of these findings are significant for investors seeking to efficiently manage risk.

Keywords: *Event Study, Abnormal Return, Silicon Valley Bank.*

1. INTRODUCTION

The banking industry holds enormous importance in the global economy, and the occurrence of a substantial bank failure might potentially result in wide-ranging implications (Cowan et al., 2022; Dorfleitner et al., 2017; Ozdemir et al., 2019). The occurrence of bank failures can exert a substantial influence on worldwide stock markets, resulting in disturbances within the financial system and influencing the level of confidence among investors. Numerous scholarly investigations have been conducted to examine the effects of bank failures on stock markets (Bellia et al., 2022; Fiordelisi & Ricci, 2016; Hori, 2005; Toussaint-Comeau et al., 2020; Helwage & Zhang, 2016). The aforementioned studies provide empirical evidence indicating that bank failures exert a substantial adverse influence on stock markets, both within domestic boundaries and across international spheres. Notably, the repercussions of such failures tend to be more conspicuous in the case of smaller banks and during periods of economic strain. The results of the study additionally indicate that the relationship between bank failures and stock market performance is contingent upon other factors, including the composition of the bank's asset portfolio and the robustness of the country's financial institutions.

On March 10, 2023, Silicon Valley Bank (SVB) had a substantial malfunction that led to the depletion of billions of dollars in deposited funds and assets. The failure of SVB occurs within the context of a thriving technology industry within the COVID-19 pandemic, wherein significant amounts of funds have been deposited by bank clients. Nevertheless, the bank's investments in the United States. The devaluation of SVB's investments was primarily caused by the loss in value of treasuries and mortgage-backed securities, which was further exacerbated by the Federal Reserve's decision to increase interest rates as a means to address

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inflation. Consequently, this decrease precipitated a notable increase in the number of withdrawals made by bank customers, including fledgling companies that heavily depend on private fundraising efforts. As a consequence of the escalation in interest rates, banks were compelled to divest assets, notably bonds that had seen depreciation, leading to substantial financial setbacks.

A notable study deficiency is in the little investigation into the specific ramifications of international bank failures on the Indonesian stock market. While numerous studies have been conducted to examine the effects of banking crises on stock markets, limited attention has been given to the specific analysis of bank failures. A number of prior studies have investigated the systematic impacts of negative announcements particular to the banking sector on the stock prices of other financial firms, and have consistently found negative effects (Madura & McDaniel, 1989; Grammaticos & Saunders, 1990; Wetmore & Brick, 1991). A recent analysis was conducted to examine the systemic implications of Lehman's bankruptcy. According to Jorion and Zhang (2009), the collapse of Lehman had adverse consequences for creditors who had substantial exposure to Lehman, indicating a notable spread of counterparty contagion. Chakrabarty and Zhang (2012) have also documented a noteworthy peer effect in relation to the Lehman collapse, wherein enterprises that were exposed to the event saw a greater degree of impact. According to the findings of Fernando et al. (2012), companies who utilized Lehman's investment banking services encountered adverse abnormal returns (AR) in the aftermath of the firm's bankruptcy. According to Johnson and Mamun (2012), the authors see a detrimental effect on the stock prices of other banks following the collapse of Lehman Brothers. They attribute this phenomenon to the transmission of information through various channels. The Chinese market exhibited a negative response as well. In this study, Helwage and Zhang (2016) examine the occurrence of information and counterparty contagion effects in the context of financial institution bankruptcy announcements. The potential ramifications of a major bank's collapse, such as SVB, on global stock markets are of considerable significance in light of the banking sector's global prominence (Cowan et al., 2022).

This article uses event studies to examine the response of financial sector share prices on the Indonesian stock market to the major bank failures that have occurred since 2008. An event study is a research methodology that aims to analyze the effects of a certain event on several financial indicators, such as stock prices, trading volume, and other relevant metrics. This work makes several significant contributions. Our research contributes to the current literature by providing additional insights into the effects of the SVB collapse on equities markets. Pandey et al. (2023) and Yadav et al. (2023) conducted studies investigating the impact of SVB failures on global aggregate equity market indices. Their findings predominantly indicate negative reactions in response to such failures. In contrast to prior scholarly investigations, this study aims to examine the repercussions of the collapse of the Silicon Valley Bank (SVB) on the financial industry in Indonesia. Therefore, the results of our study have a direct correlation with and contribute to the existing theoretical framework on the transmission of bank failures to other financial institutions (e.g., Kaufman, 1994; Liu et al., 2003).

The present paper is organized in the following manner: section 2 provides an analysis of the pertinent literature. In Section 3, the research model is presented, followed by an explanation of the event study methodology. Additionally, this section focuses on the development of hypotheses that may be empirically tested. In Section 4, the empirical analysis results are presented and afterwards discussed. In conclusion, Section 5 provides a summary of the research findings.

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2. LITERATURE STUDY

Efficient Market Theory

Fama's (1970) efficient market theory pertains to the extent to which prices at a given moment adequately incorporate all relevant information. The theoretical framework presented in this study is grounded in empirical evidence within the domain of market equilibrium models. Specifically, these models aim to ascertain the characteristics of market equilibrium under the assumption that prices accurately incorporate all relevant information. The Efficient Market Hypothesis (EMH) posits that an efficient market is characterized by market participants who engage in rational behavior aimed at maximizing profits, and where prices consistently and accurately represent all relevant information. The valuation of a security at any given time is an approximate assessment of its current worth, derived from speculative assumptions pertaining to future cash flows that include an inherent level of risk. Furthermore, the Efficient Market Hypothesis (EMH) also posits that investors acquire the ability to accurately deduce the implications of new information on the probability distribution of possible stock returns. According to Brown et al. (1988), individuals develop rational expectations regarding future events. According to Fama's seminal work in 1970, the Efficient Market Hypothesis (EMH) can be categorized into:

a. Weak form market efficiency
   The concept of weak form market efficiency refers to the hypothesis that all past market prices and trading data are already reflected in the current price of a financial asset. The concept of a weak-form efficient market is defined as a condition in which prevailing prices of financial assets accurately reflect all relevant past financial information that is currently available. Therefore, the theory substantiates the notion that investors are unable to generate extraordinary returns by investing in certain financial assets.
b. Semi-strong form market efficiency
   The semi-strong form of the efficient market hypothesis posits that financial asset prices accurately incorporate all available information in the market, encompassing both historical prices and other relevant historical data (thus incorporating the weak form of the EMH). Furthermore, this form assumes that prices adjust rapidly and without bias to assimilate new public information as it becomes available in the market.
c. Strong form market efficiency
   The concept of strong form markets posits that market prices fully reflect all available information, encompassing historical financial information (in weak form), current public information (in semi-strong form), and private knowledge pertaining to financial assets.

Event Study

The inception of contemporary event studies may be traced back to two seminal publications, namely Ball and Brown's (1968) study and Fama et al.'s (1969) contribution. The field of modern event studies has been categorized based on two key factors: the length of the Event Window and the methods used to measure performance. The event study approach, initially utilized in the fields of accounting and finance, has since been adopted across several business disciplines such as management, information systems, marketing, operations, and supply chain management (Mackinlay, 1997).

The approach of event investigation has undergone evolution throughout time, resulting in the establishment of well-defined statistical features and widespread recognition of its applications. According to Ding et al. (2018), literature reviews conducted in many business disciplines tend to prioritize matters concerning research design and the economic interpretation of study findings.

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Abnormal Returns

According to the findings of Ball and Brown (1968), it was observed that earnings information possesses informational value, as indicated by the presence of positive abnormal returns in sample groups that see an upsurge in profits, and conversely, negative abnormal returns in sample groups that witness a decline in profits. According to Hartono (2017), it has been observed that there may be abnormal returns on securities both prior to and after the disclosure of a particular event. Hence, abnormal return can be defined as the disparity between the realized return and the anticipated return.

Expected Return

According to Hartono (2017), real profit refers to the profit realized at a specific time t, which is calculated as the difference between the current price and the previous price. The calculation of expected return can be performed using three estimation methods as proposed by Hartono (2017). These models include:

1. Mean Adjusted Return. The concept of mean adjusted return refers to the measure of an investment's performance that takes into account the average return achieved relative to a benchmark or a specific market index. Stock returns exhibit a high degree of correlation with actual prices, indicating a close relationship between the two variables. Additionally, financial markets are characterized by a high level of efficiency.
2. Market Model Returns. The establishment of an anticipated model utilizing real data during the estimation period, as well as the utilization of an anticipated model to estimate the expected returns in the window period, can facilitate this process.
3. Market Adjusted Return Model. The Market Adjusted Return Model is a financial framework used to evaluate the performance of an investment by comparing its returns to the overall market performance. The present study will employ the aforementioned paradigm. According to this model, the most optimal approach for predicting stock returns is to rely on market index returns at the appropriate period, specifically during the event time. By utilizing this particular approach, the creation of a time estimation model becomes unnecessary. The sole requirement is to ascertain the observation time for each year, as the projected anticipated stock return aligns with the market index return.

Contagion Effect Theory

The Contagion Effect, often known as the domino hypothesis, refers to the phenomenon wherein the economic conditions of one country have an impact on other countries, regions, or even the global economy. The economic impact of an event taking place in a particular country or region can extend to the economic conditions of another country or region. The occurrence of economic events within a country can stimulate corresponding economic events in other countries around the globe; however, the impacts of these events are typically relative and varied. For each country that has been impacted.
The definition of the Contagion effect can be divided into three, namely:

1. Broad Definition. The broad definition refers to the identification of contagion as a widespread phenomenon including the transmission of shocks across different countries. The phenomenon of contagion can manifest itself during periods characterized by both stability and turmoil.
2. Restrictive Definition. The concept of a restrictive definition pertains to a scenario in which contagion occurs through the transmission of a shock across two countries, which

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takes place independently of the underlying correlation and external to the shared shock..

3. Very Restrictive Definition. The definition provided is characterized by its stringent nature, as it interprets contagion as a modification in the process of transmission that takes place during a crisis period. Additionally, contagion can also be inferred from a notable rise in inter-market connections.

Previous Research

Tanasal et al. (2021) did a study examining the disparities that arise between theoretical frameworks and real-world occurrences, as well as variations in research findings. This study examines the market response to the lockdown event during the COVID-19 pandemic in two nations, specifically Singapore and Thailand. It aims to assess the differences in anomalous returns, trading volume activity, and market capitalization before and after the event. The observation period was conducted for a duration of fourteen days prior to the occurrence of the event, as well as for a subsequent period of fourteen days following the incident. The research conducted employed a quantitative approach, utilizing purposive sampling as the mechanism for selecting participants and facilitating comparative analysis. The study utilized a sample size of 50 companies operating within the food and beverages industry, all of which were listed on the stock markets of Thailand and Singapore. The findings of the study indicate that the implementation of lockdown measures in Thailand and Singapore during the COVID-19 pandemic has the potential to elicit market reactions. This assertion is substantiated by the examination of two key factors, specifically abnormal returns and market capitalization, both prior to and subsequent to the occurrence.

Yadav et al. (2023) employed event study methodology to examine the effects of the decline of Silicon Valley Bank (SVB) on the performance of the leading global equity indices. Specifically, the study focused on the NASDAQ composite index, Nikkei 225, Hang Seng, SSE composite index, FTSE 100, Euronext 100, NIFTY, TSX 60, and SZSE 100. The analysis spanned from September 6, 2022, to March 22, 2023. The primary motivation for undertaking this research stems from the significant decline in equity markets resulting from the bank run that occurred on March 10, 2023. The purpose of this study is to investigate the effects of Silicon Valley Bank's operations on specific equity markets by employing a mean-adjusted event study approach. The findings indicated that every market experienced a negative return on the event. Similarly, throughout the event, all stock exchanges, with the exception of the Chinese stock market (SZSE 100), saw noteworthy and negative abnormal returns. This can be attributed to the volatile nature of the market, with the Hang Seng index recording the most substantial negative abnormal returns. Ultimately, the cumulative abnormal return (CAR) analysis indicates that the pre-event era was characterized by a state of market panic, as investors and market participants responded unfavorably to the market. This is in contrast to the post-event period, during which market corrections took place, with just a few exceptions.

In their study, Pandey et al. (2023) employed an event study methodology to investigate the repercussions of the bankruptcy of Silicon Valley Bank (SVB), a prominent technology industry financial institution, on worldwide stock markets. The findings indicate that the extent of the influence is more prominent in developed economies as a result of their heightened degrees of integration and interdependence with the global economy, leading to significantly elevated abnormal volatility. Furthermore, it is important to note that the consequences of the SVB collapse were not evenly distributed among all nations, and the extent of its influence varied depending on the level of development and stability of their respective banking systems.

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3. RESEARCH METHODOLOGY

The daily prices of the financial sector index in Indonesian Rupiah for the stock market of Indonesia are sourced from the investing.com database. The research methodology employed in this study involves the utilization of the event study strategy, which necessitates the identification of the event, event date, and event frame. On March 10, 2023, the formal announcement was made regarding the collapse of SVB. Consequently, this date, March 10, 2023, has been designated as the event date. A time frame of 200 days is employed for the purpose of estimating abnormal returns, spanning from t-204 to t-4 days, where t represents the specific date of the incident. This decision aligns with MacKinley's (1997) assertion that a time frame exceeding 120 days is satisfactory for assuming expected returns under the assumption of normal distribution.

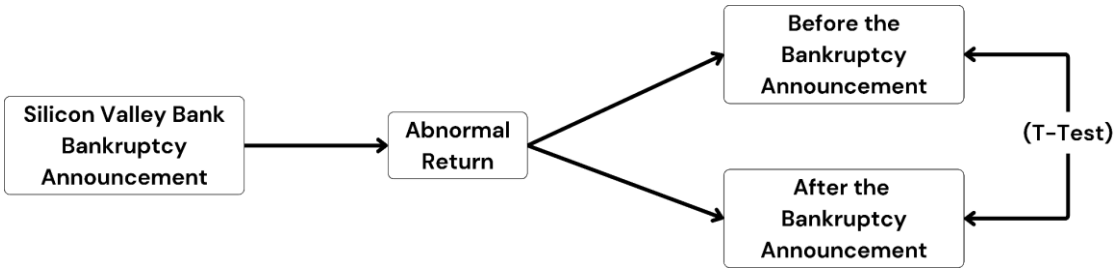

Figure 1. Research Model

On March 10, 2023, the financial institution known as SVB had a formal collapse, which was followed by the announcement of the subsequent fall of two prominent banks within the United States. The potential ramifications of the failure of major banks extend beyond their individual operations, as it can have a systemic impact on the entire financial system, perhaps resulting in the future collapse of other financial institutions (Kaufman, 1994). The occurrence of bank collapse has the potential to generate a state of uncertainty, hence resulting in a decrease in the availability of liquidity provisions by banks. This phenomenon occurs due to the positive correlation between increased uncertainty and greater premiums sought by investors, which then compels banks to restrict the provision of liquidity within the market (Brunnermeier & Pedersen, 2009). According to Kumar Verma et al. (2022), under situations characterized by heightened levels of uncertainty, banks tend to curtail their loan activities, investments, and overall economic engagement.

Moreover, it has been suggested by Liu et al. (2003) that investors have the ability to enhance the efficiency of their portfolios when confronted with event risk by reallocating their investments from high-risk assets to more secure options. This strategic adjustment is particularly relevant due to the impact of important events on market volatility. Based on the outcomes of their portfolio optimisation procedure, investors are inclined to allocate a smaller proportion of their holdings to assets with higher risk levels when the likelihood of event-induced fluctuations in returns and volatility is elevated. The behavior of investors in rebalancing their portfolios, which involves a transition towards assets with lower risk, has the potential to diminish liquidity and ultimately result in the failure of banks (Shleifer & Vishny, 2010). In the case of a bank failure, individuals may opt to reallocate their financial holdings from bank deposits and stock investments to other assets that are perceived as secure.

Based on the aforementioned background information, the initial study hypothesis can be formulated as follows:

Hypothesis 1: The declaration of bankruptcy by Silicon Valley Bank results in a notable disparity in Abnormal Returns prior to and after the announcement, specifically in relation to the performance of financial sector stocks on the Indonesian stock market.

Window Period

The primary subject of investigation in this study pertains to the declaration of bankruptcy by Silicon Valley Bank. The designated research window encompasses a duration of 7 days, commencing 3 days before the public declaration of bankruptcy by Silicon Valley Bank (t-3), and concluding 3 days subsequent to the aforementioned announcement (t+3), as per the operational schedule of the stock exchange.

Research Approach

This study used a comparative methodology to examine disparities in Abnormal Returns prior to and following the occurrence of the event. The examination was conducted via a quantitative approach, employing stock price index data from the financial sector of the Indonesia Stock Exchange.

Data Types and Sources

This study employs secondary data, specifically material that has been made accessible to the general public through publication. The provided dataset pertains to the share price data of the financial sector index on the Indonesia Stock Exchange. Subsequently, the process of data processing is conducted in order to acquire aberrant return data.

Operational Definition of Variables

Abnormal returns refer to the financial gains or losses that deviate from the expected or normal returns of a particular investment or portfolio.

$$RTN_{i,t} = R_{it} - E[R_{i,t}]$$

Information:
$RTN_{i,t}$: Abnormal Return of Stock-i on day t
$R_{i,t}$: Actual Return share-i on day t
$E[R_{i,t}]$: Expected return of stock-i

Data analysis technique

This study conducted a data normality test to determine the distribution of the data, specifically if it followed a normal distribution. The Kolmogorov-Smirnov Nonparametric Statistical Test was employed to do the data normality test. In the event that the Normality test yields results indicating a normal distribution of the data, a parametric test employing the Paired Sample Test will be employed. Conversely, if the data is found to deviate from a normal distribution, a non-parametric test utilizing the Wilcoxon Sign Rank Test will be employed. The objective of these tests is to ascertain whether a significant difference exists in Abnormal Return prior to and subsequent to the announcement of Silicon Valley bank bankruptcy.

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4. RESULT AND DISCUSSION

Data Normality Test Results

Table 1. Data Normality Test Results One-Sample Kolmogorov-Smirnov Test

		d
N		3
Normal Parameters[a, b]	Mean	-0.0043
	Std. Deviation	0.00547
Most Extreme Differences	Absolute	0.360
	Positive	0.259
	Negative	-0.360
Test Statistic		0.360
Asymp. Sig (2 tailed)		[c, d]

a. Test distribution is Normal
b. Calculated from data
c. Lilliefors Significance Correction
d. Significance can not be computed because sum of case weights is less than 5

The results of the one-sample Kolmogorov-Smirnov normality test as shown in figure 2 indicate that the data exhibits a normal distribution. Therefore, the appropriate statistical test to assess the differences is the parametric Paired Sample Test.

Hypothesis Testing Results

The findings from the Paired Sample Test as shown in figure 3 indicate that the obtained significance value of 0.315 is greater than the predetermined alpha level of 0.05. Consequently, the null hypothesis (Ho) is accepted, suggesting that the announcement of Silicon Valley Bank's bankruptcy does not exert any discernible impact on the Financial Sector in Indonesia. The findings of this study align with prior studies conducted by Pandey, et al. In 2023, it was seen that the bankruptcy of Silicon Valley Bank had varying impacts on different countries. Notably, the Indonesian Capital Market remained unaffected by this occurrence.

In contrast, our research outcomes challenge the assertions made by several prior studies regarding the impacts of bank collapses. The apprehension regarding depositors' potential withdrawal of funds from the bank and the subsequent possibility of contagion across the broader community led to a sequence of bank runs (Wisniewski & Lambe, 2013). According to Liu et al. (2003), shareholders are likely to reallocate their investments from banks and financial institutions to sectors with lower risk in response to this development. These findings suggest that the impact of bank failures on the financial industry is expected to be greater compared to their influence on broad market indexes.

Table 2. Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	After	-0.0043519	3	0.00510062	0.00294484
	Before	-0.0000267	3	0.00097161	0.00056096

Table 3. Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	after and before	3	-0.478	0.683

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Table 4. Paired Samples Text

					95% Confidence interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2 tailed)
Pair 1	after and before	-0.00432521	0.00562982	0.00325038	-0.01831045	0.00966004	-1.331	2	0.315

5. CONCLUSION

The present study uses event study techniques to analyze the repercussions of the failure of Silicon Valley Bank on the financial sector of the Indonesian stock exchange. In the present study, we aim to examine the proposition that the occurrence of bank failures has the potential to propagate across the financial system, therefore eliciting a detrimental reaction in the equity market. The proposed hypothesis posits that bank collapse might result in increased levels of uncertainty, heightened risk, and decreased liquidity (Brunnermeier & Pedersen, 2009).

Based on the findings of the conducted research, it can be inferred that the declaration of bankruptcy by Silicon Valley Bank did not exert any discernible influence on the financial sector within the Indonesian capital market. The aforementioned findings are consistent with the research conducted by Pandey et al. (2023), which suggests that the repercussions of Silicon Valley Bank's failure were more significant in developed economies. This can be attributed to the heightened degree of integration and reliance with the global economy in these regions. This phenomenon may arise due to the transmission mechanism of the impacts of the Silicon Valley Bank incident being more pronounced in sectors and countries with more exposure to exchange rate fluctuations of the US Dollar, stronger correlation between a country's financial sector and the US, and heightened investor interest.

This study provides a more comprehensive analysis by demonstrating that the financial industry inside the Indonesian capital market, specifically, remained unaffected by the declaration of bankruptcy of Silicon Valley Bank. The findings of this study appear to be impacted by the distinct nature of Silicon Valley Bank as a financial institution that specializes in providing funding to startups, which possesses unique attributes compared to domestic banks. Consequently, the Indonesian capital market, particularly the financial sector, does not appear to perceive the bankruptcy of Silicon Valley Bank as a significant concern.

The ramifications of these studies have significant importance for both investors and policy officials. The research findings presented in this study offer valuable insights for investors seeking to mitigate the risk of bank failure through global diversification. Specifically, the study examines the impact of failure transmission on the financial industry, providing crucial information for informed investment decisions. Therefore, our findings can be utilized by investors who are interested in optimizing their portfolios and implementing risk management methods in the context of bank failure events. These results enable them to evaluate the likelihood of abnormal returns within the banking sector on the Indonesian stock exchange.

Furthermore, the influence of exogenous disturbances on the financial sector within financial markets can exhibit substantial variations among sectors and locations owing to disparities in market attributes and economic fundamentals. It is imperative for investors and regulators to take into account regional dynamics when assessing the repercussions of global events on financial markets. Additionally, they should adeptly handle risks, with a specific focus on the stability and growth indicators of the banking sector.

Subsequent investigations may employ study samples consisting of enterprises meeting specific requirements within the financial sector of the Indonesian Capital Market.

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Alternatively, researchers may opt for cross-sector or cross-country studies, focusing on entities possessing distinct economic traits and foundations.

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