# A Theoretical-conceptual Approach to the Particularities and Functions of the Stock Markets, in the Context of the Pandemic Period

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## Abstract

*This study combines characteristics of stock markets that define the conditions under which complex financial mechanisms work.*

*Through an analysis of the concepts that define stock markets, the study defines their characteristics. The scientific study aims to develop, by similarity, the concept of "suspension spring" as a defining feature, as a behavioural feature of financial markets. This concept expresses the tendency to return to the initial state of the stock exchanges in the event of shocks and to resume the cyclical trend and incorporates in the characterization of the heteroscedastic stock market that it manifests, by analogy with the random flexibility of an arc.*

*In the context of the health crisis, the paper translates theoretical concepts into recommendations to participants of the stock markets on caution and good practices in decision-making moments, when at this time it is not possible to predict the impact that the Covid-19 crisis will have.*

**Key words:** financial markets, stock market characteristics, financial crisis
**J.E.L. classification:** G01, G10, G14

## 1. Introduction

The capital market is the totality of the mechanisms and interdependencies by which the transfer of funds from investors holding a surplus of capital takes place, to those who need capital, i.e. the issuance of securities. These transactions are carried out through specific operators (financial investment companies).

The capital market comprises two segments. The primary market, which is that segment of the capital market, in which new issues of financial instruments are made available to investors. By selling new financial instruments, companies, government or public sector institutions can obtain funding. Once securities are put into circulation on the primary market, they are subject to transactions on the secondary market. This is the market in which financial instruments already issued are traded. The secondary market consists of a stock market and an over-the-counter market where institutional and private investors sell and buy securities issued and put into circulation by the primary market, being the most mobile and representative segment of the free expression of the demand and supply of financial capital. In order to function efficiently, the secondary market must comply with certain requirements; liquidity (abundance of funds and securities); the lowest costs for operational mechanisms; transparency in information, for objective investor decision-making and to avoid monopoly; regulations that provide safety and counter market manipulation trends; adaptability to economic conditions.

The most important institution of the capital market is the stock exchange, the mechanism of which concentrates the supply and demand of securities, in a cumulation of free transactions. The role of the exchange is to ensure the intensive movement of securities at a rate reflecting the public interest in the holding of certain securities, an interest motivated by the economic and financial completeness of the issuer. The stock market is sensitive to all changes in economic, financial-monetary, social and political terms. The efficient functioning of the capital market ensures the prompt redistribution of financial resources between savings investors and economic operators in

need of investment to continue or expand the business. The market gives investors opportunities to place the means and allows companies to grow not only from their own sources, but also by attracting free resources from the economy.

In any society, economies and investments have played a particularly important role, both at the macroeconomic level and at the level of each person or economic operator. Each person or economic operator decides at a time that he or she considers appropriate to waive an immediate advantage or gain (determined by the use of funds available at that time) in view of a future gain (achieved by saving or investing these funds). These individual economies, insignificant if viewed individually, play an important role in the national economy as a whole. Amounts deposited with commercial banks by individuals or legal persons shall be used to grant loans to other individuals and legal persons, thereby financing investments in various economic sectors and contributing to the development of the economy as a whole. Thus, these individual actions take the form, as a whole, of markets with strategic influence at macroeconomic level, developing the mechanism of capital markets.

## 2. Theoretical background

The concept of stock market and its particularities are subject of study from the beginning of modern financial markets. Based on a fundamental theory framework, the literature has evolved with the structural and conceptual changes that the field has undergone over time.

The study of the characteristic features of stock markets goes to their very definition. The literature defines the stock market by giving it differences of approach and meanings, but retaining its fundamental features. In a classical approach, the "Romanian Law on Stock Exchanges" of 1929 - "Madgearu Law" states that "the exchanges are public institutions created with the aim of bringing together traders, industrialists, producers, shipowners and insurers in order to negotiate public and private values, currencies, currencies, commodities, products, ship rental and risk coverage of all kinds". In essence, regardless of the form it outlines, the literature agrees that it is not the form, but the role of the stock exchange that defines it essentially as an organized and specialized public market where securities, certain goods and currencies are traded.

In this paper theoretic concepts from the academy are studied, having the role of concatenate the particularities of stock markets and translate them into current reality. An awareness of the theories that define financial markets is imperative in order to be able to analyse their behaviour, to predict the evolution and to undertake the most rational and advantageous decisions.

Based on the consolidation of the literature on the features that characterize the capital markets, the paper proposes a new concept that incorporates already known features and that defines the evolution of stock markets concisely and at the same time relevant.

## 3. Research methodology

The study aims to address the working methodology based on scientific observation, on the basis of which the hypotheses and research models are formulated, which will form the basis for issuing the final conclusions.

In order to carry out an in-depth study, scientific research will start from a bibliographical documentation. This will include primary documents – literature, scientific articles, publications of national and international institutions and bodies, empirical studies, dictionaries and publications.

The research analyzes the literature from the classical definitions of the concept of stock markets to modern in-depth studies, which shape and refine the peculiarities of capital markets. By deepening different points of view of researchers on this subject, the paper reviews the existing theories in academia and issues a new personal approach.

## 4. Findings

In terms of the role played in a state's economy, the stock exchange may be defined as the physical trading place, as the institution or institutions trading, or it may represent an electronic network hosting platform that facilitate the rapid execution of transactions. Viewed as synthesized by public

limited-liability companies, the stock exchange operates because of the needs that companies have for capital increase, either because it becomes insufficient at a certain time to meet unforeseen needs, or with the intention of developing the company. In this situation, the public limited company has several methods of obtaining it: by contracting a loan granted by a bank, by contracting a loan through a bond issue or by increasing the share capital through a share issue. If the management of the company decides to make a public call for capital, it may issue securities (shares, bonds, derivatives or synthetic products). The action, briefly defined as a value representing a part of the share capital of a public limited company, takes possession of the shareholders and designates the legal relationship between the shareholder and the company, namely the rights and obligations of the shareholder towards the company. The bond is a fixed-income credit instrument that mobilises long-term capital in order to achieve certain objectives. In other words, the bond, either issued by a private company or by a State, is a loan bearing interest payable periodically to the holders of the bonds, the issuer committing to pay them at a specified time. Derivative securities are those stock products resulting from contracts between issuers and purchasers, with beneficiaries to be granted rights to assets at a future maturity in accordance with the agreed contractual terms. Synthetic securities result from the combination of sales and purchase derivatives (futures), through these integrations generating cos securities.

Some exchanges retain the physical plan of trading, but also use electronic transactions. The famous New York Stock Exchange or Tokyo Stock Exchange continues to preserve the fascinating image of "live" transactions, materializing the dynamics and complexity of daily transactions. On the other hand, there are stock markets, such as the London International Stock Exchange, which use only electronic transactions.

Stock markets have the main role of facilitating the accumulation of funds needed to finance economic activity and directing the flow of accumulated funds to the most profitable economic branches. It fulfils this role mainly through the sale and purchase of shares and bonds issued by public limited-liability companies. Those investors whose stated intention is not to become owners, but assuming their participation in risks and benefits, consider participating in the stock market through shares, while investors who do not want to become owners but only creditors, by minimizing risk, decide to buy bonds. Thus, the stock market is a point of interest from several perspectives, agreeing to take over the management of some companies by significantly acquiring shares or ensuring short-term profits by forecasting the change in the share price.

Starting from the classical approach of terminology and taking into account the didactic side of the theoretical aspects, A. Caraganciu mentions four fundamental characteristics of the stock exchange, as follows: atomicity (the existence of a large number of sellers and buyers who have the opportunity to negotiate equally, without one of the "players" having the possibility to disproportionately influence ); homogeneity of goods and values subject to the sale-purchase process; adaptability – a binding principle, which gives the market the opportunity to model according to the economic context for uninterrupted functionality; fairness and transparency, which is based on stock market regulation and full and accurate investor information.

Over time, the academic iteration outlines a number of characteristics of stock markets, the defining purpose of which is to base from a theoretical-conceptual point of view the mechanisms that develop their complex functionality and which is detailed in the following.

### 4.1. Regulation

The main feature of financial assets is to materialise through intangible liquid assets, the value of which derives from a contractual clause. The fundamental aim of financial markets is to stimulate economic growth. In the context of the increasing globalisation of recent decades, the process of liberalisation and unification of financial markets, and support for technological development, the economic and financial mechanism generates new investment opportunities based on the low costs of capital transactions and foreign capital inflows.

The defining feature of any stock exchange (of securities or commodities) is the meeting, at the same time and location, of a large number of buyers and sellers, who sell and buy multiple items or values simultaneously. The Stock Exchange shall provide the regulated framework within which these transactions are conducted without any self-interest, ensuring that market participants have a strict and equidistant trading environment. The Stock Exchange is an institution with legal

personality, in which organized transactions in securities, rights and securities are held, executed according to established rules, unequivocally observed by all participants. Stock markets are now strong and sometimes decisive influences for business and macroeconomic, indisputable proof that they have become one of the most important pillars on which contemporary reality is based. Thus, the stock market is characterised as an organised market, in the sense that transactions are carried out according to principles, rules and rules known and accepted by all participants, which does not mean market management, but its regulation for the purpose of drawing the conditions for the conduct of free competition.

**4.2. Dynamics**

The financial market cannot be approached individualistically, but as a permanently dynamic and integrated component in the economic-financial, and even social, mechanism of a company. In their paper analysing the financial market during the economic crisis, Fauzi and Wahyudi identify three factors leading to the stabilisation of integrated stock markets. The first is globalisation, which also impacts non-financial markets. The second factor is an increasing number of companies selling their shares in two or more different value markets. The last factor is related to the theory of the efficiency of the regional stock market where there is matching information between the prices of various financial assets in different stock markets. Kenourgios and Samitas conclude that an integrated regional market is proving to be much more efficient compared to a segmented national market and in the long term it avoids the non-systematic risk of stocks.

**4.3 Integration into economic reality**

Another defining aspect for stock markets is their correlation with economic reality. Exchanges trade values as representative of the economy as they are non-tangible. The main purpose of a stock exchange is to raise the capital found in the economy, redirecting it to the most profitable segments. On this premise, the stock market can be defined as the space in which the information derived from the macroeconomic environment, at national or international level, is found. With this perspective, the stock market becomes the transposition of the economic environment, evolving dependent on stability and predictability. It should be noted, however, by reverse optics, that the stock market is the most conducive place for financial crises and speculative bubbles, the consequences of which can be reflected in the real economy and which can have a significant impact on the global economy as a whole.

**4.4 Volatility**

A particularly important feature of stock markets is volatility. In finance analyses, volatility is the characteristic that measures the magnitude of the variations suffered by a particular financial instrument. Speaking of capital markets, the great economist Keynes would say, "Nothing is more dangerous than a rational investment policy in an irrational world." In his work, Shiller supplements the assumptions of classicism in finance, emitting the theory that stock market increases and descriptions cannot be predicted by a constant rate.

Volatility is a quantifiable feature of stock markets, defined as the rate at which the price of a security increases or decreases for a given set of yields. Volatility shall be measured by calculating the standard deviation of annualised yields over a given period of time. It shows the range at which the price of a share can rise or fall. The volatility is an indicator of the level of risk. It is used in the market pricing formula to assess fluctuations in asset yields, indicates stock index-setting behaviour and helps to estimate fluctuations that may occur in a short period of time. Thus, if the prices of a guarantee fluctuate rapidly in a short period of time, it is called having high volatility. Otherwise there is talk of low volatility when the prices of a value fluctuate slowly over a longer period of time.

In principle, volatility and profit relate inversely-proportionately: the higher the short-term profit, but the higher the volatility, that financial instrument is considered riskier and the greater the exposure to losses. By contrast, a lower volatility financial instrument is considered less risky. By default, volatility is the basis for determining risk and is a challenge in terms of predictability.

Volatility is not synonymous with risk. When interpreted as uncertainty, it is an essential contribution to investment decision-making and portfolio creation. Investors and stockbrokers have certain accepted levels of risk that they consider to be accepted. A good prediction of asset price

volatility during the investment holding period is a good starting point for assessing investment risk. Volatility thus becomes the most important variable in the pricing of derivatives. To determine the price of a security, we need to know the volatility of the underlying asset. Moreover, derivatives that are valued on the basis of volatility themselves may be purchased, in which case the definition and measurement of volatility will be clearly specified in derivative contracts. In these new types of contracts, volatility becomes the underlying "asset" itself. Therefore, in the case of these considerations, a forecast of volatility and a second prediction of volatility in the period defined

In an analysis on the impact of volatility on the Bucharest Stock Exchange, applying the Garch-M model over a period of 16 years, Panait and Slavescu conclude that it cannot be statistically proved, a clear correlation between risk and future yield, this hypothesis being previously validated by many authors. The study also noted that there was a general trend in conditional volatility, with some monthly time intervals tends to return faster to the long-term average, compared to conditional volatility for shorter time intervals. The impact of weekly conditional volatility has been reduced compared to daily conditional volatility, meaning that weekly conditional volatility tends to return to the long-term average more quickly.

One of the most important factors affecting the volatility of a capital market is the information of that market. But as it spreads rapidly between other capital markets, so volatility can also transfer with it. This phenomenon is known in the literature as the "spill over effect". It refers to the impact that an event occurring in a state causes, apparently unrelated, an impact on the financial markets of other nations. Although there are positive propagation effects, the term is most commonly applied to the negative impact that an internal event has on other geographical points. Of course, the spill over effect tends to increase in the case of closer connections in states, for example between European Union member countries or between the United States and Canada.

Engle, Ito and Lin deepen scientific research on the phenomenon of propagation, identifying two forms of it. The concept of 'heat wave effect' implies that the volatility of a financial asset is influenced by internal factors, such as past shocks and the square of errors in the conditional average equation of yields, in this case the impact of the event having a local and regional spread. The second form of manifestation of the spill over effect is called a 'meteor shower', which has in a short time global implication and causes a high level of volatility.

The established index of the estimate of financial market volatility is VIX. (CBOE Volatility Index). It calculates the default volatility of the S&P 500 index. Given that volatility is a measure of the degree of assumed risk that is projected in the share price and relates to the most representative index of the dominant US stock market, VIX is considered an indicator of the feeling of fear of financial markets globally. VIX is considered by many to be an indicator of the ratio of suspicion to risk on the stock market. By using a wide range of share prices, the index provides an indication of the implied volatility of 30 days at the share market price of the S&P 500 index. Thus, the VIX index records values inversely proportional to the performance of the S&P 500. The analysis of the VIX index, however, must be based on the degree of influence that the dominant has in relation to the market under consideration. An example is Shaikh's scientific research, in which he approaches a comparative study the evolution of India's emerging market against the VIX index, with developed financial markets, in the light of events that have influenced major economies. Thus, it has been observed that the various crises that have taken place in European countries have not affected the Indian economy so much, as the local economy is not dependent on these European economies; on the other hand, the stock market suffered losses at the time of the crisis in Russia in 2014, being in a relationship of interdependence with it. These assumptions were also scientifically proven by comparing the VIX index, which recorded an unusually high value in India during the Russian crisis, which translates into a high level of volatility caused by uncertainty. A similar phenomenon occurred in September 2014, when the Indian stock market was affected by the crisis of the Chinese stock market and in this case the correlations with the degree of market volatility were confirmed.

### 4.5 Contagion

In the context of globalisation, contagion reflects that appropriation that cannot be ignored in any area of modern society. Socially, culturally, technologically, in terms of mobility and exchange of goods, information and ideas, the global intersection is indisputable. And economically and

financially, contagion characterizes and even more, radically influences the current mechanisms of interrelationship worldwide.

The Financial Contagion was defined as "the transmission of shocks between countries and the generic effects of contagion between countries". Despite the fact that it is seen as an economic abnormality, which is visible only in certain difficult-to-predict contexts, financial contagion cannot be ignored, but on the contrary, it is a phenomenon long studied, with a view to a better understanding, through the prospect of forecasting and effort to control and minimize its negative effects.

Academic literature defines the contagion of financial markets through different approaches. Studied globally, through the prism of events with negative economic impact, scientific researchers agree on the importance and influence that this phenomenon exerts on financial markets.

King and Wadhwani points to a significant increase in interdependence between the United States of America, on the one hand, and the United Kingdom, on the other, during the 1987 crisis. Lee and Kim not only highlight the contagion generated in 1987, but also shows its expansion beyond developed financial markets, involving emerging markets. Calvo and Reinhart had studied on the subject of contagion, confirming this time on another case study, namely the crisis in Mexico in 1994.

Bae, Karolyi, and Stulz define financial contagion as the simultaneous emergence of extreme co-overshoots of return between two financial markets, following an increase in unexpected volatility in one of the markets when the stock market collapses. A similar theoretical-conceptual approach also emits Horváth, Lyócsa and Baugöhl characterize contagion as a negative effect in the context of economic crises. The authors also add to the original definition a new aspect, namely that we can define contagion in a broader sense without identifying ourselves a priori of a period of crisis; a contagion event can also occur in the short term (even a day), which may be negligible in a forward-looking analysis, but which causes unexplained behaviour only through internal factors. The same study issues as a proven conclusion on the basis of scientific research that evidence of financial contagion is found for the emerging markets included in the studio, respectively the Czech Republic, Croatia, Hungary, Poland, Estonia and Romania). As a final conclusion of the paper, the authors argue that the phenomenon of contagion is presently independent of the monetary policy regime adopted by the countries.

The year 2020 and the Covid-19 crisis led to a new emergence of the phenomenon of financial contagion. V. Ionescu points out in the interview for www.piatafinanciara.ro that this context has generated a generalized uncertainty, resulting in a high volatility and causing a high level of contagion, recording the highest values since 2011 (when Romania felt the effects of the crisis). Regarding the international context and the national financial market as an integral part of the European mechanism, Ionescu mentions that Romania is influenced by the risk factors found in the capital markets of the region, such as Poland, Austria and Hungary.

In the same context of financial contagion, Samarkoon draws attention to the difference between contagion and interdependence. Terms may have a common result but should not be confused. In his paper, Samarkoon examines the phenomenon of extending the financial crisis in the United States to 62 emerging and border countries, including in the study Central and Eastern European countries.

The literature, however, shares different points of view. One example is Forbes and Rigobon, which contradict the conclusions of Lee and Kim's 1993 paper, mentioned above, and promote interdependence as a causal factor, exemplifying the economic crises in Mexico in 1994 and Asia in 1997 and based on research based on 24 developed and emerging countries.

**4.6 Time variations and limited predictability**

The changes over time in the evolution of stock markets are one of the main characteristics of these financial mechanisms, in their study and estimation being involved all participants of the stock market environment. Bond investors study historical yields using wide time intervals but, for logical and empirical reasons, their estimates of potential long-term yields almost always start from market yields. Equity investors rarely use dividends, when assessing expected long-term returns. This is due to the fact that they expect profitability to be constant in the long term. Long sampling periods provide better estimates, which hide the extreme developments in the short term, as long as the market does not undergo some fundamental structural changes.

Scientific studies addressing this theme have adopted in the United States and started by focusing on the returns of the capital market here. Starting in the interwar period (Smith in 1924) and continuing until the 1970s (for example Fisher and Lore in1964 or Ibbotson and Sinquefiel in 1976), the literature analysed stock market yields focusing on the North American region, considered the most evolved stock market.

In the 1980s, the literature provided empirical evidence in favour of predictability over a number of times. Proponents of stock market behavioural theories have concluded that in the short term the predictability of market yields can be more easily estimated, but long-term predictability is more promising. Thus, share prices tend to return over time to the average and capital market yields are directly influenced by dividend yields.

The literature from the 1990s refines the prediction methodology of stock markets, developing rational, risk-based models and irrational models, which integrate behavioural factors applied into the forecast analysis of stock market values over a wide time frame. Shiller highlighted the predictive capacity of a market valuation indicator known as the 'cyclically adjusted price/profit index', also known as 'Shiller P/E' or 'CAPE', whose advantage is to balance profitability over a 10-year period and adjust profit and price with the rate of inflation.

In conclusion, contemporary academia, adapted to the new needs and challenges of today's economic and financial environment, agrees that changes in stock markets over time are a determining factor in the estimation of financial developments, without which it is not possible to predict yields. Chambers and Dimson point out that any time variation in expected yields can be explained either by rational theories or irrational theories. Rational explanations include time-variable volatility, time fluctuations in the sense of risk-taking aversion, and the risk of spontaneous calamities. The analysis of the time series borrows a main intuition from the cross-cutting analysis: assets that perform poorly in bad times should earn higher returns as a form of compensation. Irrational explanations are often based on variations in investor sentiment over time, on the natural alternation of participants' feelings that swing between greed and fear, but also on social or political events that incomprehensibly affect collective behaviour.

**4.7 Globalisation**

In the 2000s, the theme of the profitability of stock markets over time was updated in the literature because of the mutations experienced by the globalization effect. Jorion and Goetzmann, as well as Dimson, Marsh and Staunton highlighted the complexity of the estimation process in the new context of the integration of national markets, recognising the need to develop new methods of analysis and foresight. Thus, in the following years, the concept of average profitability was adapted to allow for a variation over time in cash or bond yields or inflation, plus a constant capital premium. Dimson, Marsh and Staunton analyse a compound real annual yield of 5% for world shares between 1900 and 2015 and a 3.2% capital premium for global bonds. Thus, the average historical real yield of 5% can be extrapolated as a projection of the forecast in a similar percentage for the expected constant yields.

In view of the experiences gained in decades of stock market developments, Shiller's theoretical analyses in the 1990s come to be fundamental and to be found in the practice of the last decades. Through the context of globalisation, labour market integration and mergers, researchers are committed to the difficult task of predicting market developments in the new context and implicitly to answer the question "What is the "normal" risk? (Arnott and Bernstein, 2002) that investors should assume in order to benefit from fair proportionality profitability/risk. In this context, business and analysts have gone from medium-term analyses of financial market developments to the development of medium- and long-term strategies that have the capacity to mitigate the impact of unpredictable, shock moments.

**4.8 Cyclical evolution**

From the experience of the last decades, it can be concluded that the feature of cyclicality over time of the evolution of the financial market can be estimated the emergence of new moments of imbalance, but the precise prediction of the moment is almost impossible, given the multitude of external factors that interferes with the whole economic-financial mechanism and which, at the same time, corroborate the phenomenon of financial integration at regional and global level. The reality

shows us that, despite advanced econometric strategies and models, the evolution of financial markets never stops to surprise.

However, the financial researchers mostly conclude that financial markets, in correlation with the economic environment, are subject to a cyclical development, which can be empirically proven and observed to have an estimated period of 25-30 years. This feature of stock markets is particularly important in long-term financial analyses and underlines once again that expectations are picking up stock yields and fair forecasts can only be achieved in the context of a time frame of the order of decades. Even if short-term expectations of development may be foreseeable, they cannot conclude a sustainable development, nor can they guarantee a solid return, but possibly a speculative profit subject to a high degree of risk.

## 5. Conclusions

This paper combines characteristics of stock markets that define in the literature the conditions under which complex financial mechanisms work. The peculiarities of financial markets are a topic of interest in the scientific environment. I can conclude that the fundamental features of stock markets have been identified by classical literature, but recent research complements the conceptual elements with us, diversifying theoretical principles with progress and adaptation to economic realities.

From a theoretical-conceptual point of view, the study concluded that the characteristics of financial markets cannot be analysed unilaterally. The complexity of stock market mechanisms integrates the functionalities and characteristics that define them. As a conclusion of the theoretical concepts that has been studied, I issue the concept of "suspension spring" as a defining characteristic of stock markets evolution. With this term, I define the feature by which the behaviour of financial markets expresses the tendency to return to the initial state in the event of shocks and at the same time to resume the cyclical trend. By the term "suspension spring", it is included in the characterization of the market the heteroscedasticity of which it manifests, by analogy with the random flexibility of a spring. Also, the scientific literature agrees that the stock markets react suddenly, and often exaggeratedly, to external factors. This property can be compared to the way a suspension spring is elastically compressing or expanding when it suffers a physical impulse.

In practical terms, the study concludes that the ongoing concern of academic literature for updating and refining the complex characteristics of stock markets is justified. Also, the scientific environment recommends to the participants in these financial mechanisms and to state authorities on caution and maturity in decision-making processes. These recommendations are more important than ever, considering the fact that the financial markets - the more they benefit from the advantages of integration - the more vulnerable they are to economic crises. The example of the 2008 financial crisis shows how instability can be intrinsically caused by the very behaviour of participants in the financial market. In retrospect, it is noted that the balance on which Arnott and Bernstein drew attention in 2002 was well known to business, investors and analysts; academic research pointing out that over-speculative behaviour and irrational risk-taking can trigger imbalances that, through the snowball phenomenon, bring financial mechanisms into collapse.

At the same time, the health crisis in 2020 has significantly impacted stock index values, and the medium and long-term consequences of this phenomenon remain unknown for the time being.

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