The Expected Financial Effects Of Cryptocurrencies: A Study On A Sample Of Arab Countries That Deal In Them

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Abstract

Cryptocurrencies are a financial innovation that led to a revolution in the world of finance. The repercussions have reached countries around the world on the economic and legislative levels. This has been the case after dealing with these currencies has reached more than the size of the economies of individual countries. In this study, we seek to understand the reality of these currencies through an expressed model, "Bitcoin" whereby we present what they are, their characteristics, the mechanism of work, the position of Arab countries on them, and other related matters. The study aims to identify cryptocurrencies, their types and characteristics, reveal the extent of the impact of this currency from an economic point of view, and monitor the possible financial effects if adopted on a larger scale. The study has reached conclusions including that cryptocurrencies have tangible effects on financial policies through their impact on the volume of tax revenues and government spending. Cryptocurrencies' effect is positive for the countries of the world that most use them. They also contribute to increasing tax evasion for their secrecy if government agencies cannot impose control over the various actions of these cryptocurrencies.

Keywords Cryptocurrencies, Bitcoin, government spending, tax.

1- Introduction:

In the last decades of the 20th century, many changes and transformations were introduced as a result of technological developments. The rapid growth of technological innovations and technologies contributed to the transfer of societies over time to the information age, and led to the birth and emergence of many modern applications and activities. Knowledge is considered the most important factor for their success. Cryptocurrencies are considered financial innovation, and their use has spread and varied in their forms to more than 8,600 coins.

Many economic and financial activities linked to technological changes have emerged. These include electronic software, and Internet economy and digital currencies. Cryptocurrencies are one of the products of Blockchain, and this technology has become the cornerstone or main organizer of digital currencies in the modern era. Because of its great prominence and ease, a digital currency does not have a physical existence. Rather, it is only traded on the Internet and is generated through special programs in the computer. It is considered one of the most interesting and surprising manifestations of progress. In a positive light, it can be expected to revolutionize the economic and commercial sphere in various aspects, such as finance and transactions. It can promote financial inclusion by providing new and low-cost payment methods to those who do not have official bank accounts.

The study examines Cryptocurrencies and their financial implications, especially since many Arab countries have begun to deal in this currency as an economic and financial reality.

1.1 The importance of the study

The importance of the study is highlighted by the importance of the topic that we are dealing with, which is cryptocurrencies, as this topic is one of contemporary topics, as well as the increase of the entry of cryptocurrencies to the financial markets, and the expected increase in the importance

of cryptocurrencies and the possibility of making them as a real alternative to legal money in the future.

The importance of this study is manifested by the following:

The contribution of cryptocurrencies to the development of economic commercial transactions between the countries with which they operate, and making them open to customers regardless of their geographical location, as they transcend the temporal and spatial boundaries that impede the movement of transactions. This, therefore, helps to establish an electronic global economy.

Cryptocurrencies are also considered a financial innovation combining economics, finance and technology.

1.2 The Problem of the study

The topic discusses multiple problems related to a basic problem, which is the emergence of a new type of currency that has no physical existence, and is not issued by a sovereign authority.

Therefore, the study problem can be formulated in the following questions:

What are cryptocurrencies and their characteristics?

What are the effects of cryptocurrencies on financial policy and government spending and taxes?

1.3 The hypotheses of the study

The study assumes that there is a set of expected effects of Cryptocurrencies (Bitcoin) on many economic, financial and banking variables such as financial policies.

There are financial effects such as (government spending and tax revenue) of cryptocurrencies for countries that deal in these currencies.

1.4 Aim of the study

This study aims to study the effects of dealing in cryptocurrencies on the possible financial variables of Internet and Internet use, given their important role in the economy such as taxes and government spending.

1.5 The Community and Sample of the study

The study was conducted in the Arab countries, a sample of 10 Arab countries with the highest usage in Cryptocurrencies. These are: Egypt, Morocco, Saudi Arabia, Iraq, the United Arab Emirates, Jordan, Lebanon, Oman, Kuwait, and Qatar.

2- Methodology

2.1 Cryptocurrencies

Bitcoin can be considered the first occurrence of these encrypted virtual currencies, which were the result of the white paper published by an anonymous programmer called Satoshi Nakamoto. So far, it remains unclear whether Satoshi Nakamoto is a real person, a pseudonym, or a group of people under the name A-Peer to-Peer Electronic Cash System.

The process of issuing the first crypto-currency, bitcoin, began in January 2009, and bitcoin was issued only within limits by a few enthusiasts that year. It was estimated that Nakamoto, the currency issuer, had created only about one million bitcoin units in that year.

2.1.1 Cryptocurrency concept

The World Bank (WB) classified cryptocurrencies as subsets of digital currencies, defining them as numerical representations of value, and evaluating them in their own unit of account as distinct from electronic money, which is a means with numerical denominations followed in traditional currencies. It also classified cryptocurrencies as digital currencies based on cryptographic techniques. (Jordan Central Bank, 2020, p. 20)

Cryptocurrencies are coded as a digital equivalent of value, issued by private developers and evaluated on their unit of account. They have a wide range of default currencies covered by this definition, which could include simple debt bonds issued by non-official issuers, as well as default currencies supported by assets such as gold, cryptocurrencies such as bitcoin and others. (IMF Staff Discussion Note, 2016).

2.1.2 Cryptocurrency mining

The term "mining" is used in the field of virtual currencies to denote the way virtual currencies are searched on the Internet using free software that performs complex

and documented calculations. The user needs to solve a series of mathematical and logical sequences (algorithms) to detect a long chain that tends to be complicated as the amount of the currency is increased, and then they are able to issue the currency and convert it into an asset in an electronic financial portfolio. This is then used over the internet, like any currency in the world and often under pseudonyms. However, it does not have the same characteristics of real paper currency as well as the absence of any legal cover for it as anyone with special equipment can produce the currency. (Abu Salah, 2018, p. 9).

Cryptocurrency mining is the process by which cryptocurrencies are launched or minted as coins for entry into circulation (GUEGAN, 2018, p. 2).

2.1.3 Blockchain Technology:

- **The Concept of Blockchain:**
This technology was created in order to circulate cryptocurrencies, chiefly, bitcoin. It is necessary to understand the basic database, which is called Blockchain. In fact, trading is done from one party to another without third-party intervention (known as "peer-to-peer" (Deloitte, 2018, p. 7).
The real innovation of bitcoin is not really digital money at all, which has existed in many forms for decades. Rather, it is the basis of the system that makes a distributed currency (p2p) possible in the early days of the Internet. The first thing the Internet made available was valuable to ordinary users: email. This was followed years later by the World Wide Web. They are both wonderful innovations that have changed the way we live, work and communicate, and these innovations are called applications.
The building block for an application enabling the infrastructure transmitting data over a protocol called TCP / IP as this should be first in place. This has been the case since so many other useful applications have been enabled as well. Similarly, Blockchain supports a layered application on top. (Nader, 2018, p. 6)
The Blockchain: This saves data in blocks. To create a continuous line, these blocks

are sequentially connected. Each block has a specific time limit to verify the authenticity of the transactions it has to keep Blockchain safe. The verification process is carried out by 1 programs to confirm transactions in blocks, called mining (Prusty, 2017, p. 14).

2.1.4 Characteristics of Cryptocurrencies

- All cryptocurrencies and electronic money belong to digital money. They are circulated online. However, electronic money is covered by legal money for a specific currency. However, cryptocurrencies are not owned by a central entity responsible for their issuance and are illegal in many countries. (Vovchenko et al., 2017, p. 38).
- Digital cryptocurrency without physical presence (i.e., intangible, and traded in a virtual community by the Internet. (Dibrova, 2016, p. 44).
- Cryptocurrencies have no gold or monetary cover. They are decentralized currency that is not managed by any official body, institution, international organization or governmental body. However, it can be converted at their value into legal money. (Qader, 2020, p. 196).
- The digital cryptocurrency is issued through mining. It is an informal currency that does not require formal certification. Government agencies cannot track or control the trade processes conducted by this currency and the monetary authorities cannot control its offer or price (Marchiori, 2021, p. 1).
- Cryptocurrencies are transparent so all users can track portfolio financial transactions and financial transfers while hiding the user's identity.(Satoshi Nakamoto,2019,11)

2.1.5. Types of cryptocurrency
The use of cryptocurrencies has spread as there are many encrypted virtual currencies that have shocked the Internet space in the past few years. The number of these

currencies, to date, reached more than 8261, and it cannot be counted because there is no law governing and regulating their issuance. Most of them are reproduced from the principle of Bitcoin in terms of the method of mining, the time it takes, and the encryption process. We will show examples of the most famous of these cryptocurrencies as follows:

- **Bitcoin:**

Bitcoin is considered one of the most important and famous cryptocurrencies. It occupies the first position in terms of volume and market value. It is a virtual currency that started to be used in 2009 by an unknown person who called himself "Satoshi Nakamoto". It was then monitored by a network of computers around the world, and obtained and transacted by the user through digital stock exchanges. Bitcoin does not physically exist. Rather, it is a digital key registered in a digital wallet that can manage the transitions, accepting to be broken into small units called Satoshi. Each configuration consists of 100 million Satoshi (Bikramaditya Singhal & Others, 2018, 5).

- **Ethereum – ETH):)**

Ethereum (ETH) is an abbreviated term for a digital currency, also known as a service currency. Appeared in 2015, this currency represents the second most popular currency after the digital currency Bitcoin (Bitcoin) in terms of circulation and spread despite its recent history. However, the mechanism of its issuance is different from that of Bitcoin, where Ethereum is a currency based on the (Ethereum) platform, which is a global platform for issuing and authenticating self-executing smart contracts. This platform is programmed within the framework of a distribution network, the centers of which are similar to traditional contracts while achieving higher levels of security and trust.

It also depends on the Blockchain technology and the most advanced decentralized records. It should be noted that Russian programmer Vitalik Buterin invented the Ethereum currency. This is a platform for smart contracts where developers are able to create decentralized applications that allow smart contracts to run code. It is programmed so that there is no possibility of currency operating systems being shut down or defrauded, without third-party intervention other than the operator and the platform. It can be said, however, that Ethereum is the currency of smart contracts that facilitates the exchange of money, property, shares or anything of value (Dabrowski & Janikowski, 2018, p. 13).

- **Tether (USDT):**

It occupies the third place and its price is $1.21. It is a cryptocurrency linked to the value of the US dollar and the euro. It converts recognized currencies into digital currencies that are the most stable among all cryptocurrencies because they are linked to the US dollar. Each Tether unit has one dollar in the Federal Reserve (the US central bank), and this makes it a great opportunity for investors who want to deal with their cryptocurrency created by Tether Foundation in 2014. (Bitcoinarabic, 2022).

- **Binance Coin**

Binance coin (BNB) occupies the fourth place and is headquartered in Hong Kong. It is a trading platform for cryptocurrencies and allows the trading of more than 100 cryptocurrencies. The platform was established in 2017 by a Chinese programmer (Zhang Pingzhou). It moved from China to Japan after the Chinese government decided to ban the circulation of cryptocurrencies. Binance Coin is one of the few cryptocurrencies that have peaked after 2017. During that year, the market was upward and the prices of all cryptocurrencies rose, peaking before stabilizing and falling slightly. Unlike the rest of the cryptocurrencies, BNB continued a slow but steady upward trend after 2017. Given its performance, it proved to be one of the more stable investment options, implying fewer risks. (Bitcoinarabic, 2022)

- **Lietcoin (LTC)**

The cryptocurrency is called the silver coin because it appeared after Bitcoin. Charles Lee, a former Google engineer and MIT graduate, announced the creation of the digital currency in October 2011. The coin

is based on an international open source payment network, and is not subject to any central entity like a business guide. The coin was founded to create a faster generation of the coin, and thus to facilitate dealings. It also became more popular with traders, especially after mid-2018, with a ceiling of $5.03 billion and a symbolic value estimated at $89.60 (Gareth W. Peters & Others, 2019, p. 8).

2.2 Effects of cryptocurrencies on the financial economy

The increasing use of the Internet has contributed to a multiplication of virtual communities, generating a new fiscal concept of proposing cryptocurrencies and online payment vehicles for the exchange of goods and services. The spread of cryptocurrencies affects fiscal policy, increasing the volume of tax evasion, money-laundering crimes, drug and arms trafficking, the balance of payments, and the declining rate of productive investment.

2.2.1 Effects of cryptocurrency trading on taxes:

States have coded transactions under tax regimes. However, countries usually differentiate between individuals and firms, and between private individuals and traders and other discriminations, each according to its own tax system. At the individual level, Sweden is an example of a distinction between individuals who are investors and non-investors. The first type of capital tax is imposed in accordance with the Income Tax Act. France occasionally imposes a non-commercial profit tax on investors, while investors are regularly subject to a trade profits tax or capital tax. In addition, France exempts annual profits of no more than 305 million euros from tax. (Bank for international settlements, 2015, p. 136).

In Germany, they divide cryptocurrencies into means of payment and financial instruments. The former are exempt from tax, the latter are subject to income tax. In Japan, which differentiates cryptocurrencies as a means of payment and as an asset or financial instrument, puts it in the category of income diversification in principle. The Japanese tax code defines this as: "Income not falling under the category of interest income, dividends, real property income, business income or salary income…" Income from cryptocurrencies may be classified as commercial income and is collectively subject to income tax at its value at the time of acquisition. (National Tax Agency of Japan, 2017, pp. 27-36).

In the United Kingdom, it distinguishes the exchange of cryptocurrencies in two types: either an exchange classified as income-tax commercial income, or an investment subject to capital tax. Some countries may consider the purchase and sale of services by cryptocurrency as an exchange subject to income tax or capital, as in Sweden. (Sweden, 2020, p.145).

2.2.2 Its effects on government spending

What is meant by fiscal policy: is all the conditions that have a strong bearing on the amount of money circulating in the market and the tools used by the financial authorities with the aim of changing the volume of government spending or public revenues in the event of an imbalance in the public budget, such as treasury bonds and money creation (Al-Mahr, 1981, p. 139).

Cryptocurrencies harm the national economy by reducing the rate of productive investments, where cryptocurrencies can help capital flight to them in order to generate imaginary profits and the consequent low rate of savings and investment (Dibrova, 2016, p. 45).

Dealing with cryptocurrencies affects the balance of payments because there are economic transactions between residents in the state and those living abroad, which are not restricted by the balance of payments. Therefore, services or money (legal money) can go through the Internet without the control or knowledge of the state. Thus, this affects the economic situation of the state, because there are some operations that are not recorded. Therefore, the state's assets and rights and the obligations and duties of the state can not be known accurately although the cryptocurrencies have a specific role now because they are not spread and are not recognized by most countries. However, we believe that the larger the electronic commerce, the more the deal with cryptocurrencies, the faster

they are traded, which is suitable for electronic commerce. To face this phenomenon, the financial authorities of the state need to remove the obstacles to the movement of legal money. It is also necessary to reduce the expenses of transferring and converting currency in order to increase reliance on legal money in electronic commerce, especially since legal money is distinguished from cryptocurrencies by its general acceptance (Financial Action Task Force (FATF), 2014, p. 9).

2.3 Arab countries dealing with cryptocurrency in terms of the number of users

The current study was conducted on a sample of 10 Arab countries with the highest usage in terms of Cryptocurrencies. These countries are: Egypt, Morocco, Saudi Arabia, Iraq, United Arab Emirates, Jordan, Lebanon, Oman, Kuwait, and Qatar. Egypt was the first among the Arab countries in terms of the number of dealers in cryptocurrencies in 2022 at more than 1.7 million, followed by Morocco, as the number of dealers in cryptocurrencies reached more than 878.1 thousand. The number of those working in cryptocurrencies was 452.7 thousand in Saudi Arabia, followed by Iraq at 375.3 thousand, followed by other Arab countries.

3. Results

3.1 Measuring and analyzing the impact of cryptocurrency indicators on financial economic variables.

First, we present the time series data statistically and determine the nature and properties of these data. These tests show the arithmetic mean, median, (maximum), (minimum), and standard deviation (STD). Dev.), Skewness and Kurtosis of quarterly data for the time series, and Jarque-Bera test for the natural distribution of the time series under study. If the probability value of Jarque-Bera test is greater than (1%), we accept the null hypothesis that the data follows the normal distribution and reject the alternative hypothesis that the data does not follow the normal distribution. If the probability is less than (1%), we reject the null hypothesis that the data follows the normal distribution and accept the alternative hypothesis that the data does not follow the normal distribution.

3.2 Estimating the impact of cryptocurrency indicators on the rate of government spending in the Arab countries.

As we mentioned earlier, there are three main models of the panel models, and therefore the question arises about the most appropriate model for the data of the current study. To answer this question, we use two methods, the first is the comparison between the aggregative (combined) regression model and the fixed effects model. If the fixed effects model is accepted, we use the second method to compare between the fixed effects model and the random effects model, which are as follows:

Table (1): Regression results using the three panel data models for a sample of Arab countries
For the period 2011-2020

Estimation method						
	Fixed Effects		Pooled regression		random effects model	
Explanatory variables.	Prob.	Coefficient	Prob.	Coefficient	Prob.	Coefficient
X1	0.0166	0.000645	0.5080	0.000375	0.0186	0.000631
X2	0.3587	-6.11E-05	0.3666	0.000113	0.3863	-5.74E-05
X3	0.3350	-0.120220	0.9387	0.003525	0.5851	-0.050135
C	0.0000	99.85090	0.0000	92.75937	0.0000	95.85231
Bundle data test results						

0.030302	0.786593	0.099009	Adjusted R-squared
2.031226	31.40844	0.702435	F-statistic
0.114637	0.0000000	0.552864	Prob(F-statistic)
0.493840	0.541653	0.102972	DW

Table: taken from the researcher's numbers based on program outputsViews.10.

In Table (1), the results of the regression are presented using panel data models for a sample of Arab countries as follows:

A) Pooled Regression Model (PME)

By displaying regression results using data models Panel data for a sample of Arab countries, we note that there is a direct relationship between the Bitcoin indicator (X3,X2,X1) and government spending (Y2). The higher the use of cryptocurrency indicators, the higher the rate of government spending. The results of (Adjusted R-squared) showed that (X1,X2,X3) as independent variables interpreted (9 %) of the changes in the dependent variable (Y2), and that (91%) can be ascribed to other factors not included in the model. In other words, (9%) is the ability of the independent variables to predict the dependent variable. As for the (F-statistic) test when Probability level Prob (0.552864) is greater than (5%), it indicates the overall insignificance of the model from the statistical point of view. The (DW) statistics indicate that it reached its peak (0.102972) and this means that the model is not free from the problem of autocorrelation.

B) Fixed Effects Model: Fixed Effects Model(FEM).

We can also note that there is a direct relationship between the Bitcoin indicator (X1) with the government spending rate (Y2), that is, the higher the Bitcoin index (X1), the higher the government spending rate. As for the Internet and ATM users index (X3,X2), it has an inverse relationship with (Y2). The results of (Adjusted) R-squared) test showed that (X1,X2,X3) as independent variables explained (78%) of the changes in the dependent variable (Y2), and that (22%) can be ascribed to other factors not included in the model. In other words, the

(78%) is the ability of the independent variables to predict the dependent variable. As for the (F-statistic) test at a probability level of Prob (0.000000) less than (5%), it indicates the overall significance of the model from a statistical point of view. The (DW) statistics indicate that it reached its peak (0.541653), and this explains The model is not without the problem of autocorrelation.

C) Random Effects Model (REM):).

By displaying regression results using data models Panel data for a sample of Arab countries, we can note that there is a direct relationship between the Bitcoin indicator (X1) and the inflation rate (Y2), i.e. the higher the use of the Bitcoin indicator, the higher the rate of government spending. As for the indicators of Internet and ATM users (X2,X3), it has an inverse relationship with (Y2). The results of the (Adjusted R-squared) showed that (X1,X2,X3) as independent variables have explained (0.3%) of the changes in the dependent variable (Y2), and that (97%) can be ascribed to other factors not included in the model. In other words, the (0.3%) is the ability of the independent variables to predict the dependent variable. As for the (F-statistic) test at a probabilistic level of Prob (0.114637) greater than (5%), it indicates the overall insignificance of the model from a statistical point of view. The (DW) statistics indicate that it reached its peak (0.493840). This explains that the model is not free from the issue of autocorrelation.

D) Choosing the appropriate model for the study:

In order to determine the most appropriate method of analysis for the study data, a Chow test was performed for the tests between the Pooled model and the fixed effect, as well as the Hausman Test for the model comparative tests between fixed and random effects as follows:

1) Comparison between the typical fixed and random effects through the Hausman Test.

Table (2): The results of the comparison between the Pooled model and the fixed effect model.

Redundant Fixed Effects Tests			
Effects Test	**Statistic**	**(9,87)**	**Prob.**
Cross-section F	40.770761	9	0.0000
Cross-section Chi-square	165.204997	(9,87)	0.0000

Table (2): From the researcher's numbers based on program outputsViews.10.

Table (2) displays results that determine the most appropriate model through the test between the Pooled model and the fixed effects model, which is the Fisher statistic test (F) Restricted. The test (F) reached the probabilistic level of Prob (0.6843). This is

greater than (5%). Therefore, we accept the hypothesis of null hypothesis and reject the alternative hypothesis. Thus, we choose the model of random effects.

2) between typical fixed and random effects through a Hausman Test.

Table (3): The results of the comparison between the fixed and random effects model

Correlated Random Effects - Hausman Test			
Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. df**	**Prob.**
Cross-section random	1.491265	3	0.6843

Table: From the researcher's numbers based on program outputsViews.10.

It is shown in Table (55), in which the results are presented to determine the most suitable model by testing between the fixed and random effects model, which is the Fisher statistical restricted test (F), that the test (F) reached the Prob probability level (0.6843). This value is greater than (5%). So, we accept the hypothesis of nothingness and reject the alternative hypothesis, that is, we choose the model of random effects..

As we mentioned before, there are three main channel models, so the question arises as to which model is most appropriate for the current study data. To answer this question, we use two methods. The first is the method of differentiating between the Pooled regression model (the combined) and the fixed effects model. So, the fixed effects model is accepted. We use the second method to differentiate between the fixed effects model and the random effects model:

3.3 Estimating the effect of cryptocurrency indicators on tax revenues in the Arab countries

Table (4): Regression results using the three panel data models for a sample of Arab countries for the period 2011-2020

Estimation method						
Explanatory variables	**Fixed Effects**		**Pooled regression**		**random effects**	
	Prob.	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**	**Coefficient**
X1	0.7634	1.06E-05	0.5701	4.13E-05	0.0000	1.14E-05
X2	0.5565	-5.20E-06	0.1009	-2.65E-05	0.9689	-5.85E-06
X3	0.8271	-0.003616	0.7515	0.001867	0.5901	-0.002433
C	0.0000	12.90078	0.0000	12.59197	0.0000	12.83338

Bundle data test results			
Adjusted R-squared	0.773153	0.079111	0.025426
F-statistic	29.11806	0.973909	0.181740
Prob(F-statistic)	0.0000000	0.408412	0.908564
D-W	0.698118	0.140330	0.640468

Table: From the researcher's numbers based on program outputsViews.10.

Table (4) presents the results of the regression using data models Panel data for a sample of countries in the Arab world and as follows:

A- Pooled Regression Model (PME)

By displaying regression results using data models Panel data for a sample of Arab countries, we note that there is a direct relationship between the indicators of Bitcoin, the ATM (X1, X3) and tax revenues (Y4). This means that the higher the use of cryptocurrency indicators, the higher this leads to tax revenues. As for the Internet users index (X2), it has an inverse relationship with tax revenues. (Adjusted R-squared) results showed that (X1,X2,X3) as independent variables have explained (7%) of the changes that occurred in the dependent variable (Y4), and that (93%) can be ascribed to other factors not included in the model. In other words, (7%) is the ability of the independent variables to predict the dependent variable. As for the (F-statistic) test at a probabilistic level of Prob (0.408412) less than (5%), it indicates the overall significance of the model from a statistical point of view. The (DW) statistics indicate that it reached its peak (0.140330), and this explains that the model is not without a problem of autocorrelation.

B- Fixed Effects Model (FEM)

By displaying regression results using data models Panel data for a sample of foreign countries, we can note that there is a direct relationship between the Bitcoin indicator (X1) and tax revenues (Y3). This means that the higher the use of the Bitcoin index, the higher the tax revenues, and an inverse relationship with the index of Internet and ATM users (X2,X3), and the results of (Adjusted R-squared) showed that (X1,X2, X3) as independent variables have explained (98%) of the changes in the

dependent variable (Y3), and that (77%) can be ascribed to other factors not included in the model. In other words, (23%) is the ability of the independent variables to predict the dependent variable. As for the (F-statistic) test at a probabilistic level of Prob (0.000000) less than (5%), it indicates the overall significance of the model from the statistical point of view. The (DW) statistics indicate that it reached its peak (0.918626), and this explains that the model is not free from the problem of autocorrelation.

C) Random Effects Model (REM)

By displaying regression results using data models Panel data for a sample of Arab countries, we can note that there is a direct relationship between the Bitcoin indicator (X1) and tax revenues (Y3). This means that the higher the use of the Bitcoin index, the higher this would lead to a rise in tax revenues, and an inverse relationship with the index of Internet and ATM users (X2,X3). The results of (Adjusted R-squared) showed that (X1,X2, X3) as independent variables have explained (2%) of the changes in the dependent variable (Y3), and that (98%) can be ascribed to other factors not included in the model. In other words, (2%) is the ability of the independent variables to predict the dependent variable. As for the (F-statistic) test at a probabilistic level of Prob (0.908564) less than (5%), it indicates the overall significance of the model from a statistical point of view. The (DW) statistics indicate that it reached its peak (0.640468), and this explains that the model is not free from the problem of autocorrelation.

D- Choosing the appropriate model for the study:

To determine the most appropriate analysis method of the study data, a Chow test was performed for the comparison between the

pooled model and the fixed effect, as well as the Hausman Test for typical comparison tests, fixed and random effects and as follows:

1-   Comparison between the pooled model and the fixed effect is through the Chow test.

Table (5): The results of the comparison between the pooled model and the fixed effect model

Redundant Fixed Effects Tests			
Effects Test	**Statistic**	**df**	**Prob.**
Cross-section F	37.391869	(9,87)	0.0000
Cross-section Chi-square	158.270873	9	0.0000

Table: From the researcher's numbers based on program outputsViews.10.

The table presents results to determine the most appropriate model through the comparison between the pooled model and the fixed effects model, which is the Fisher statistic test (F) Restricted. The (F) test

reached at Prob (0.000000) and is less than (5%). So, we reject the null hypothesis and accept the alternative hypothesis. Thus, we choose the fixed effects model.

2-   Comparison between typical fixed and random effects through a Hausman Test.

Table (6): The results of the comparison between the fixed and random effects model

Correlated Random Effects - Hausman Test			
Test Summary	**Chi-Sq. Statistic**	**Chi-Sq. df**	**Prob.**
Cross-section random	0.690880	3	0.8753

Table: From the researcher's numbers based on program outputsViews.10.

In Table (6), the results are presented to determine the most suitable model by testing between the fixed and random effects model, which is the Fisher's restricted. The F test was at a prob level (0.8753. greater than (5%). So, we accept the null hypothesis and reject the alternative hypothesis, i.e. we choose the random effects model.

Conclusions

1- Although cryptocurrencies have several benefits at the economic level and at the level of individuals in light of the distinctive features they enjoy, there are, however, many risks and challenges they face. Of particular note are the risks of fraud, money laundering and terrorist financing, which threaten the security and stability of the financial system. This calls for the authorities to regulate or

prohibit them according to the context of the country.

2- Cryptocurrencies will change the style and methodology of the work of the financial sector and banks around the world. Given that Bitcoin is not governed by any authority and is not subject to any central laws, the exchange of currencies is carried out directly between dealers without the presence of an intermediary.

3- Countries have not joined forces to develop an international legislative framework to regulate dealing with cryptocurrencies, despite the globalization of cryptocurrencies and their spread will affect the international economy.

4- Cryptocurrencies have tangible effects on financial policy through their impact on the volume of tax revenues and government spending, and their impact is positive for the countries in the world that use the most cryptocurrencies.

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