Efficient Model for Certificate of Agricultural Commodity Deposit in Iranian Capital Market

Davar Mahikar[1]
Sayed Abbas Mousavian[2]
Reza Gholami Jamakrani[3*]

[1] Student of Financial Engineering, Qom Branch, Islamic Azad University, Qom, Iran
[2]Professor of the Institute of Islamic Culture and Thought
[3] Department of Accounting, Qom Branch, Islamic Azad University, Qom, Iran
*Corresponding Author Email: Rezajamkarani1@gmail.com

Abstract: A commodity deposit certificate is a way to facilitate trading, financing, and risk management through the commodity exchange market system. Since this instrument is developed based on agricultural products in the capital market, the following studies indicate that for its development and effectiveness in Iran, the various aspects of its policy, legal, economic and financial implications require consideration. In this research, using survey studies and expert opinions, the effective factors of success of the model used in the field of commodity deposit certificates in agriculture have been identified and then the related relationships with structural-interpretive model (ISM) have been analyzed. The results imply that "policies and regulations" as well as "infrastructure" at the highest level and "economic" and "culturalization" dimensions at the next level have the greatest impact on the development of commodity deposit certificates in agriculture. Therefore, suggestions for improvement and development of this tool in order to maximize its efficiency have been provided in the form of components corresponding to these dimensions. **Keywords**: Certificate of Commodity Deposit, Structural-Interpretive Modeling, Capital Market

1 INTRODUCTION

In the process of economic growth and development, the agricultural sector has many roles such as supplying raw materials to the upstream industries, supplying inputs such as labor, consuming production of other industrial sectors such as fertilizers and pesticides and agricultural machinery, providing for the country and supply. Finance covers other infrastructure sectors. In addition to the roles mentioned, the health and food security of a country is directly dependent on the production of the agricultural sector, and any disruption to its production process can directly threaten the country's food security and even political security (Mohammadi, 2016). The sector accounts for about 10 percent of GDP and more than 32 percent of the country's business value added. On the other hand, studies show that about 81.6% of the value of economic activities in rural areas is related to production and 18.4% to productive services that has made the inevitable need to invest in productive services development in addition to the need to invest in infrastructure and new technology development, injecting resources and accelerating investment in agriculture (Kazemi et al., 2018).

The iranian agricultural market, due to underdeveloped agricultural economy and traditional and inefficient structure as an organized and self-regulated and competitive market, has many difficulties such as lack of transparency, price fluctuations, lack of proper information flow, over-distribution intermediaries, inadequate distribution network, commodity non-standardization, and ultimately consumer dissatisfaction. And customers have seen this part (Besharat Ehsani, 2017). With the mentioned description of the Iranian commodity exchange, using modern financial instruments such as the certificate of commodity deposit in agriculture seeks to eliminate the existing problems and shortcomings in order to facilitate commodity trading (Rajavi, 2018). A survey of the agricultural community shows that in the Bank-based economy of Iran, 75.9% of the supply of funds in the agricultural market comes from official sources (banking network) and 24.1% from informal sources (Arab Mazar and Khodarahi,

1999). Therefore, the market capitalization of the capital should be exploited in order to sustain the economic growth of this sector (Foebosi, 2015). The amount of financing from the capital market during the years 2010-2017 ranged from 8.83 to 32.85% and therefore more attention is needed to the variety of tools for public participation in financing long-term investment activities (Ebadi and Gul). Mohammadi, 2019). Among the tools used to finance and manage risk in the agricultural sector is a commodity deposit certificate that, if the model designed to suit the economic, cultural, financial and legal conditions of the country, can play its real role in this area. Certificate of Commodity Deposit is a financial instrument that, with the use of Warehouse Securities, provides the basis for selling more products (Soltaninejad et al., 2016). This method reduces the cost of financing in the capital market and increases the liquidity of commodities for producers and makes prices more transparent; it can also increase the sale of national products in international markets backed by commodity deposit certificates .

This research seeks to answer the question: What is the model of the factors influencing the performance of a commodity deposit certificate in agriculture with a structural-interpretive approach? For this purpose, while conducting field surveys and using expert opinion, using the structural-interpretive model, for the questions asked in terms of the success of the commodity deposit instrument in the agricultural sector, appropriate responses were received and identified shortcomings. In order to address them and streamline processes, an effective model has been developed that will bring benefits to finance, trading, risk management as well as capacity building in the agricultural sector. Therefore, first, the dimensions and components affecting the development of the commodity deposit certificate in the agricultural sector were extracted through library study and referring to the documentation and research conducted. Brokers, Suppliers, Agricultural Banks that provided the conceptual model in Figure 8b. The set of factors described in the Structural-Interpretive Model in the form of an implementation questionnaire were evaluated by 40 experts who were selected by purposeful sampling and finally analyzed using statistical tests and quantitative and mathematical techniques. MATLAB software is done. The scope of this research is a subject matter in the field of humanities studies and a temporal analysis of the performance of commodity stock exchange in the agricultural sector for the years 1397-1979. In terms of location, the research area is the Iranian Stock Exchange.

2. LITERATURE AND BACKGROUND

A Certificate of Deposit is a security document that confirms that the holder owns a certain amount of the item deposited in the warehouse and is backed by a bill issued by the stock exchange approved warehouses. Suitable goods for these transactions are those that meet the requirements for standardization and do not change over time, have high durability and acceptable shelf life, do not exceed market demand and can be seperated in standard shipments for sale (Isa Zadeh, 2016). This tool is not limited to agricultural products and various commodities can be traded (Fattan, 2015). In these transactions, instead of the product, the document of ownership of the product is handed over and the product itself is placed in a standard warehouse (Soltani-Nejad, 1396). In this way, farmers place their crops in stock-approved warehouses and receive bills of exchange. This bill is traded in the secondary transactions until the delivery of the product (Rezaeipour, 2014). Soltani-Nejad et al. (2016), in a study entitled "Agricultural Sector Support Policies Focusing on Market-Based Approaches through Commodity Exchanges" examined governments' approaches to supporting the agricultural sector and concluded that is, using market-based tools can achieve more desirable results than traditional methods. Soltani-Nejad et al. (2016) concluded in a study that the reason for failure of agricultural ring in commodity exchange is due to the traditional agricultural structure, which makes the trading volume in thriving and low agricultural ring if mergers

independent. Shirazi (2013) examines the causes of crop failure in Iranian commodity stock exchange by using questionnaire data. Low volume of crop supply, traditional agricultural market, lack of derivative instruments, low level of familiarity with commodity exchange and lack of rules And the standards in the stock market have caused the agricultural ring to fail. Sinai (2005) in a study entitled "Economic Evaluation of Iranian Agricultural Stock Exchange Performance" concluded that the performance of Iranian commodity stock exchange in agricultural products is not desirable. In a study using descriptive methods and experts' views, Shahnoshi et al. (2005) investigated ways to improve the status of the Iranian Agricultural Stock Exchange. The results of the study showed that the lack of cultural background and the lack of infrastructure needed to operate the new commodity exchange market in agricultural products are the main causes of the gap between supply and demand of commodities traded in the commodity exchange and lack of prosperity in this market. Chizari (2005) concludes in a study that price risk transfer, price transparency, creating a competitive market, changing the pattern of cultivation, increasing product distribution network efficiency, standardizing goods, joining the WTO, investment development and financial development, one of the good of the commodity exchange in the world and Iran. He examined the relationship between stock market activity and agricultural sector growth in the US, Japan and Canada, and concluded that there was a positive relationship between the two. Sabah Kermani and Hosseini (2005), by analyzing the effects of commodity exchange on the economy and the agricultural sector, found that the formation of the commodity exchange would turn the informal network of agricultural commodities into an official network and create a stable financial system.

Mohammadi (2004), in an article entitled "Market of Agricultural Products from Tradition to Modernity", introduces different characteristics of the agricultural stock market mentioned in the research. Chizari (2003) believes that the most important effects of launching agricultural commodity stock exchange in the country, creating competitive conditions in agricultural products, helping to standardize crops, developing marketing operations, clearing information, transferring price risk, guaranteeing derivatives trading and ultimately market development they are agricultural products. Jovicic et al. (2017) conducted a study on agricultural trade financing with a commodity deposit certificate. They concluded that the method allows farmers to obtain the working capital required on the basis of agricultural products stored in authorized warehouses. Holle (2017) in an article entitled "Collateral Management System (CMS) and Warehouse System" while referring to the types of risks that exist in both collateral management and warehouse system concluded that these systems, lending risks Reduces banks to producers. A study by Access Bank of Madagascar (2015) on commodity deposit financing implies commodity loan repayment and suggests that this method has benefits for both the customer and the bank. Tondi Chabeto and Anthony Quiquio (2015) conducted a study on deposit certificates for smallholder farmers in Ghana and Zimbabwe's farmers and concluded that smallholder farms were not suitable for commercial certified warehouse bills, but some non-farmers. The farmer collects the farm and receives it (warehouse bill) and then converts it into a one-year tradable deposit certificate, using it as collateral for working capital facilities in a study examined the framework of financing through a Pakistan Certificate of Deposit of Goods and concluded that under the aforementioned system, assets are actually held and shipped and all contracts are based on principles. Laws are standardized. Therefore, Islamic banking institutions can also develop their financing services in accordance with the commodity deposit certificate and according to other religious standards. Chitra (2014) examined the factors affecting the use of commodity deposit certificates as a financing instrument in Kenya and concluded that the use of commodity deposit certificates as collateral

is one way of overcoming collateral restriction and obtaining Loans are by farmers, and this can help improve the lives of farmers.

Nathaniel N.Towo and Prosper J Kimaro (2014) examined the certificate of deposit system in Tanzania. In this study, the most important reason for farmers to use these securities is to have easy access to credit by lending it to the banks. Mahanta Devajit (2012) in an article titled “Reviewing the Warehouse Bill System and Certificate of Commodity Deposit as a Financing Tool” India's interest in implementing the aforementioned approach covers risk, easier transfer of goods, availability of financing through warehousing, availability It lists the assets as well as the ability to control the final quality of the goods. According to reports published by international institutions such as the International Monetary Fund, the Certificate of Deposit of Goods is one of the common financing instruments in developed countries and some developing countries. Based on the experiences of the Philippines (1978), Hungary (1996), Bulgaria (1998), Malaysia (1998), Slovakia (1998), India (2007), Brazil (2000), Argentina (1914), Kazakhstan (2001), Ukraine (2001), 2002) and Serbia (2009) Setting up a Commodity Deposit Certificate System can lead to the development of the agricultural sector and the expansion of market-based financing of farmers (Soltaninejad, 2016). According to the results of the FAO studies, there is a great need for a legal framework to create a framework in which to produce securities under the Certificate of Commodity Deposit. Because the commodity deposit certificate can help develop the agricultural sector during the transition from government interventionism to market-based supportive policies . In Iran, despite the successes of the capital market, the share of agricultural products in this market is lower than in other products, as it fluctuated between 109,000 tons and 2.9 million tons in the years 2014-1979 and reached the highest level of 33%. 11% of the total trading volume of commodity stock exchange is about 2.5% of agricultural production in Iran. This low volume can be due to various factors such as lack of public knowledge of the stock exchange facilities, lack of quality and specific standards, how to support the government in this sector and their interventions, and obstacles to the enforcement of laws, lack of knowledge of agricultural associations with the stock exchange, the commodity and the lack of motivation to attend it (Ahangari et al., 2016). Unfavorable share of agricultural products in the capital market and the need to pay attention to the efficiency of the model used in commodity deposit certificates it discusses macroeconomic and macroeconomic factors, regulatory, policy and financial and non-financial risks, and this research seeks to address them.

3- RESEARCH METHODS

In order to present an efficient model for the success of agricultural commodity deposit certificates, a 'structural-interpretive' approach has been employed. Structural-interpretive modeling is an appropriate technique for establishing and understanding the relationships between elements of a complex system. This model examines the order and direction of the complex relationships among elements of a system and is a suitable way to analyze the impact of one variable on other variables (Agarwal et al., 2007). It can also prioritize and quantify the elements of a system that can help managers and policymakers better implement phenomena (Huang et al., 2005). One of the benefits of this approach is its comprehensibility to a wide range of users, its integration into the expertise of experts and its applicability to the study of complex and diverse systems (Azar et al., 1977, p. 257). Therefore, this study uses this model to understand the elements governing the performance of a commodity deposit certificate in the Iranian commodity exchange. In this research, first, the effective aspects of development of commodity deposit certificates in agricultural sector were extracted through library study and referring to documentation and research, Brokers, Suppliers, Agricultural Banks) after eliminating and adding items, the conceptual model is classified into 8 general categories. This

final questionnaire is valid since it is based on library studies and opinions of technologists, the set of factors mentioned earlier in the structural-interpretive model was implemented in a questionnaire and selected by purposeful sampling of 40 experts. Finally, the analysis was performed using statistical tests and quantitative and mathematical techniques.

A- Dimensions and Components Affecting the Certificate of Commodity Deposit of Agricultural Products

Dimensions affecting the development of commodity deposit certificates in agriculture based on library studies and expert interviews are classified into 8 categories, which are described as follows

1. Policies, laws and regulations

1-1- Definition of Certificate of Commodity Deposit as one of the most reliable securities in the banking network for financing the owners of goods (Abdollahi, 2016).

1-2- Application of incentive policies for agricultural commodity trading in Iran (Soltaninejad, 2018).

1-3- Determining appropriate tax incentives to encourage suppliers and buyers to capital market efficiency (Chizari, 2003).

1-4- Establishment of commodity investment funds with diversification of product portfolio and risk distribution among different products (Hajvand, 2016).

1-5- Government's attention to strengthening the capital market structure and having a development-oriented view of the authorities involved in the stock exchange (Bahadivand Chegini, 1977).

1-6- Establishment of local and regional stock exchanges based on the relative advantage of different regions in the production of agricultural commodities (Hosseini Yekani, 2018)

1-7- Government attention to different production costs in provinces and announcement of unit price for all farmers (Tasnim News Agency, 2018).

1-8- Some formal requirements such as having a trading code (Abdollahi, 2018)

1-9- Dual Attitude of the State Trading Company on the Issue of Buying and Selling on the Stock Exchange by Legal Entities and Debtors (Najafpour et al., 2014).

10-10- Considering specific rules regarding the impossibility of monopolizing the commodity market by pre-empting a large volume of contracts by some traders (Sabagh Kermani & Hosseini, 2003).

1-11- Delivery of goods to the customer regarding the sale of the product on the stock market by the state trading company and without any restrictions outside the contract (Najafpour et al., 2014).

1-12- Non-obligation of state-owned companies to store essential goods and supply them on the stock exchange (Najafpour et al., 2014)

1-13- Implementation of Exhibit 1 Article 1 Implementing Regulations Article 33 Enhancement of the Productivity Act providing for the listing of tradable agricultural products by the end of May of each year by the Ministry of Agriculture Jihad literally.

1-14- Implementation of Article 18 of the Law on the Development of New Financial Instruments and Instruments to Exclude Goods Subject to Admission to the Commodity Exchange from Including Government Pricing (Mohammadi, 2018).

Supply of livestock products in accordance with Article 19 of the Comprehensive Animal Husbandry Act (Najafpour et al., 2014)

2- Economic

2-1- Paying attention to the concept of transparency in the structure of the economy of the country (Abdollahi, 2017), in the absence of unfair behavior, unreasonable pricing, rent and maximum transparency (Shahi Arabi, 2018).

2-2- Coordination of agricultural commodities such as the Ministry of Jihad-e-Agriculture and its affiliated entities with the Agricultural Bank and the Stock Exchange in the successful implementation of the Agricultural Commodity Deposit Certificate (Mehrfard, 2015).

2-3- Having a comprehensive database of agricultural products and producers and consumers for production planning and cultivation pattern at the country level (Adibu Khoo, 2014).

2-4- Lack of pricing of agricultural products through government intervention (Najafpour et al., 2014) and gradual replacement of economic and commercial liberalization strategy instead of protectionist strategy (Yerevan, 2015).

2-5- Coordination of macroeconomic and monetary policy objectives with stock market operations and financing and payment facilities for agricultural commodities traders, traders, stock market traders (Rahmani, 2012).

2-6- Auditors' taste for tax-exempt activities in agriculture (Abdollahi, 2016).

2-7- Using the capacity of marketers and intermediaries in the development of stock exchanges in order to improve the trading process and improve the effectiveness and efficiency of transactions (Rezaeipour, 2016).

2-8- Cooperation with the World Banks in the direction of transferring money on the trading platform in order to prevent foreign money laundering (Soltaninejad, 2018).

3- Exports

3-1- Attention to packaging for international presence in agricultural products (Ghanbari, 2017)

3-2- Attention to Grading to Increase Agricultural Exports (Nourani, 2018)

3-3- Considering price stability and exchange rate control and stabilization policies in export markets (Zargaran, 2018) and export Infrastructure and Subsidy Direction for Exports of Agricultural and Horticultural Products and Expansion of Bilateral Cooperation with Neighboring Countries to Export Agricultural Products (Nourani, 2016).

3-4- Modifying the regulations regarding the requirements of the FSA in order to return the resources derived from the export of products such as saffron to the countries economic cycle (Weapons, 1977).

3-5- The presence of stock brokers in the target exporting countries, in order to facilitate the conditions for export of goods and exchanges and to increase the price transparency and better interaction with international markets, as well as to increase the number of stock market participants and introduce the Iranian capital market and to provide several products. The country directly to foreign countries (Ahmadvand, 2018) and the conversion of commodity stock exchange into a transnational and international role to contribute to economic equilibrium and production boom (Bijeni, 2018).

3-6- Compliance with International Reporting Standards to Increase the Comparability of Financial Statements, Enhance Transparency in Providing Corporate Information, Increase the Quality of Financial Reporting and Finally Investor Benefits (Rahmani & Sharifi, 2013).

4- Culture-building

Introducing the banking network with the Certificate of Commodity Deposit for financing (Soltaninejad, 2016)

Introducing farmers, traders, agents, policy makers and executives in the agricultural sector (unions and cooperatives) to the stock exchange and the types of contracts used in it and the advantages of trading in the sector (Adibu Khoo, 2014).

5. Characteristics of the agricultural sector

5-1- Applying and strengthening production associations and cooperatives to integrate products purchased from smallholder farmers and transfer them to stock exchanges approved (Asadi Karam, 2016).
5-2- Removing the traditional view of agricultural issues and replacing the technical and engineering approach to optimize the use of factors and inputs for sustainable agriculture and familiarize producers and buyers with the concept of financial instruments and markets (Bijeni, 2018).
5-3- Define the required standards for agricultural products for warehouse delivery and certification of commodity deposits (Sabah Kermani & Azizi, 2005).
5-4- Establish special arrangements for the supply of small-scale farmers' products on the stock market due to the scattering of agricultural sector activists in the country (Wormozari, 2014).
5-5- The need for proper coordination and linkage between support policies and the optimal cropping pattern in order to determine the direction of the farmers' movement in the crop with the aim of producing more and profitable crops (Sabah Kermani and Hosseini, 2003).
5-6- Deficiency of refrigeration, warehousing and conversion, complementary and processing industries in order to accept crops in short harvest season (Papizadeh, 2014).
5-7- Eliminating the ambiguity and defining the import policy of agricultural products (Bahadivand Chegini, 2018).
5-8- Acceptance of intermediary factors in the market and the role of intermediaries in the agricultural industry in order to create an economic opportunity (Abdollahi & Abazari, 2016).
5-9- Acceptance and supply of the entire agricultural commodity chain in the commodity exchange for maximum price transparency (Mofteh, 2018).
5-10- Decrease in production due to pests and diseases, diseases and climatic conditions and low rainfall in the agricultural sector and its effect on commodity exchange performance (Brealey, 1969).
5-11- Product price volatility in commodity exchange due to supply fluctuations due to heterogeneity of economic situation at the time of planting and harvesting and climate change (Ghajar et al., 2013).
5-12- Increasing the trading of agricultural commodities in commodity exchange (Bahadivand Chagini, 1977).
5-13- Corruption of agricultural products and its long-term non-maintenance and reduction of bargaining power of farmers and forcing them to sell the crop in a short period (Papizadeh, 2014).
5-14- The unpredictability of agricultural prices and its high volatility due to the lack of supply and demand gaps in different seasons of the year (Chizari, 2003).
5-15- Large crop space and large storage space compared to other commodities and low volume price (Interview with experts, 2018).
5-16 Encouraging farmers to sell crops outside the commodity exchange by speculation by local agents and intermediaries and considering the necessary arrangements to counteract their behavior (Fallah, 2017).

6- Commodity exchange microstructures

6-1- Determination of warehousing costs and insurance and commission fees on commodity exchanges in order to minimize its effects on return on investment and market efficiency (Rostami & Ali Mohammadi, 2015, p. 26).
6-2- Considering the necessary measures to minimize the effects of limiting the scope of price change and the existence of a time limit for trading on the stock

exchange, the volume of transactions, the interval between transactions, the bid-ask spread, the transaction price. And the permissible amplitude of the oscillation as microstructural elements (Rostami and Ali Mohammadi, 2015, p. 16).
6.3- Proportionate the size of contracts with the rate of production of smallholder farmers (Shirzad, 1977).
6.4- Limiting the minimum volume limit on the acceptance and trading of goods in different rings (Hosseini Yekani, 2018).

7. Infrastructure

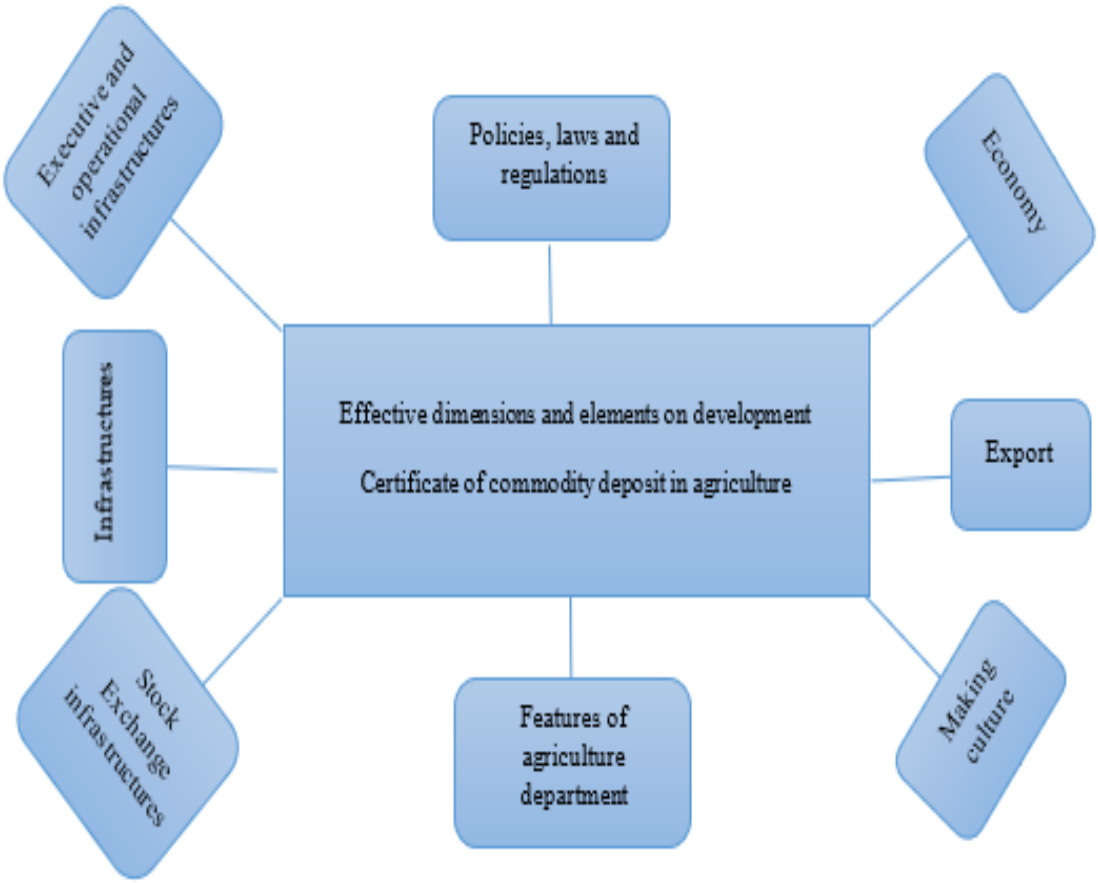
7-1- Completion of trading and software systems of certificate of deposit of goods in order to increase economic security of the parties to the transaction (Ramadani, 2018)
7-2- Improving the communication of commodity exchange systems with other systems such as (customs, taxation, agriculture, agricultural jihad, transportation) to enhance the supervisory role of the stock exchange (Jaafari Dolatabadi, 2018).
7-3- Increase the scope of broker network activity in rural areas and establish a broker-dealer forum to make it easier and cheaper for consumers and producers to access raw materials and products (Turcan, 2019).
7-4- Providing software communication infrastructure and connecting to regional stock exchanges and international markets in line with the transnational role of commodity exchange in selling surplus products on domestic demand (Bijeni, 2018)
7-5- Receiving Warehouses Outside Iran and in Free Zones for Development of Non-Oil Exports of Iran as well as Financing in International Area (Soltaninejad, 2016).
7-6- Providing infrastructure facilities and services (roads, freight companies, scales, quality control services, administrative efficiency, warehousing and rapid communication to succeed in commodity exchange (Chizari, 2003).
7-7- Eliminate the ambiguity of how to clear the currency for export opportunities (Abdollahi, 2018).
7-8- Provide comprehensive warehousing database in the country to enable online management and timely inventory availability, proper planning of supply and distribution in the country, timely provision of the needs of each province, proper planning of distribution operations of important products and essential goods, Ability to provide accurate forecasting to country producers (Ghanbari, 2017).

8- Executive and operational mechanism

8-1- Eliminate the shortage of warehouses approved by the commodity exchange in the country for the use of warehousing receipts for financing (Asgraoladi, 2017).
8-2- Fixing problems related to depositing guarantees and payable collateral for stock exchanges (Abdollahi & Abazari, 2018).
8-3- Creating credit sales capability using commodity deposit certificates (Abdollahi, 2018).
8-4- Use of stock exchange capability to trade standardized problem products such as specialty garden products (Abdollahi, 2018).
8-5- Resolving the Problem of Time Trading through the Commodity Exchange Process to Increase Transaction Volume (Sabah Kermani, 2003).
8-6- The need for the inspection departments to be activated in order to minimize the moral hazard of the warehousing regarding the storage conditions of the goods safely compared to the ownership method (Abdollahi, 2019).
8-7- Decommissioning the mechanism of safe storage of goods after the maturity of the certificate of deposit by the warehouseman (Abdollahi, 2018).
8-8- Suitable geographical distribution of warehouses in order to allow producers, organizations and market participants of the local market to stock exchange in more productive areas (Hosseini Yekani, 2018).
8-9- Consideration of minimum storage capacity according to the environmental conditions of the areas (Hosseini Yekani, 2018).

B- The research conceptual model

The concept is a qualitative variable and derives from one's mental perception of a phenomenon that is perceived and felt in the environment. This variable is not directly visible or measurable for being abstract. Rather, by using observable variables that are used to explain or explain experiences, to operationalize a concept and measure its value, it must first describe its dimensions and then identify the relevant components. It is the component of assumptions that one dimension or dimension can have. Based on these dimensions and components, the conceptual framework of the model is designed (Tabibi et al., 2016, p. 360). The conceptual model of the dimensions and components affecting the performance and success of a certified agricultural deposit is summarized below.



4 Research Findings

This test was performed by ISM method in MATLAB software. First, descriptive statistics were used to examine the demographic characteristics of the respondents in terms of gender, age, education, and work experience, and then by using Structural-Interpretive Modeling (ISM) techniques and factors affecting and influencing factors. It is evaluated, then by the McMack technique; the criteria for influence and dependency are examined. According to data from the sample, 80 percent were male and 20 percent were female. Also, 50% of the samples were in the age range of 30-35 years, 25% in the age range of 40-35 years and 25% of the samples were 40 years old. The percentage has a working history of more than 15 years. In terms of level of education, 12.5% of PhDs, 25% of the sample had a Master's degree, 37.5% of the sample had a bachelor's degree, and 25% of the sample had an associate's degree (Source: Research Findings). The percentages indicated indicate that the individuals in question had an

acceptable level of literacy and professional experience that would certainly be helpful in formulating the terms, policies, or modifications to the Certificate of Deposit.

Based on the conceptual model obtained, the effective dimensions of commodity deposit performance in agriculture are as follows:

Effective Dimensions of Certificate of Deposit Efficiency

Index	Code
Export	C1
Infrastructures	C2
Policies, laws and regulations	C3
Executive and operational Mechanism	C4
Infrastructures	C5
Economy	C6
Features of agriculture department	C7
Making culture	C8

Source: Research Findings

- *The formation of a self-interacting matrix*

In the first step, the self-interacting matrix is structured using respondents' views, in the first row and column of these matrices, the variables are listed in order, and their two-way relationships are marked by symbols. To form this matrix, the criteria are paired together and respond to pairwise comparisons based on the following spectrum (Jetish et al., 2007).

V: Row factor i causes the j-column factor to be realized.

A: The factor of column j causes the factor of row i to be fulfilled.

X: Both rows and columns work together (factor i and j have a mutual relationship).

O: There is no relationship between the row and column factor.

Table 1- Structural Self-Interaction Matrix

	C1	C2	C3	C4	C5	C6	C7	C8
C1		A	A	A	A	A	X	A
C2			A	X	A	A	V	A
C3				V	X	V	V	V
C4					A	A	V	A
C5						V	V	V
C6							V	X
C7								A
C8								

Source: Research Findings

- *Early Access Matrix Formation*

In the second step, the initial access matrix is formed by converting the structural self-interaction matrix to zero and one numbers. To do this, the following rule is called how to convert conceptual relationships to numbers (Jetish et al., 2007):

- If the symbol of the house ij is a letter V, the number 1 will be assigned to the house and zero to the symmetrical house.
- If the symbol of the house ij is the letter A, the number zero is assigned to the house and the number 1 in the symmetric house.
- If the symbol of the house ij is the letter X, the number 1 is assigned to the house and the number 1 to the symmetrical house.

- If the symbol of the house ij is the letter O, there is a zero in the house and zero in the symmetrical house.

Table 2- Primary Access Matrix

	C1	C2	C3	C4	C5	C6	C7	C8
C1	0	0	0	0	0	0	1	0
C2	1	0	0	1	0	0	1	0
C3	1	1	0	1	1	1	1	1
C4	1	1	0	0	0	0	1	0
C5	1	1	1	1	0	1	1	1
C6	1	1	0	1	0	0	1	1
C7	1	0	0	0	0	0	0	0
C8	1	1	0	1	0	1	1	0

Source: (Research Findings)

- *Compatible Early Access Matrix*

After the initial access matrix is achieved, internal consistency must be achieved. For example, if variable i leads to variable j and variable j leads to variable k, then variable i must also lead to variable k (Chatish Thakar et al., 2007) and if the access matrix did not exist, then the matrix should Be reformed and such relationships be improved. This compatibility is added to the primary access matrix by using secondary relationships that may not exist. Huang et al. Applied mathematical rules to create consistency. So the matrix reaches the power (k + 1) and is k≥1. However, the matrix powering operation must be in accordance with the Boolean rule (1 * 1 = 1 and 1 + 1 = 1) (Huang et al., 2005).

Table 3: Compatible Initial Access Matrix

	C1	C2	C3	C4	C5	C6	C7	C8	Power of influence
C1	1	0	0	0	0	0	1	0	2
C2	1	1	0	1	0	0	1	0	4
C3	1	1	1	1	1	1	1	1	8
C4	1	1	0	1	0	0	1	0	4
C5	1	1	1	1	1	1	1	1	8
C6	1	1	0	1	0	1	1	1	6
C7	1	0	0	0	0	0	1	0	2
C8	1	1	0	1	0	1	1	1	6
Dependency rate	8	6	2	6	2	4	8	4	

Source: (Research Findings)

- *Determination of variable levels and cone matrix formation*

In step 4, it should be computed on the basis of the consistent access matrix of the variable levels. In this step, the set of input (prerequisite) and output (access) criteria are calculated for each dimension and then the common factors are identified. In this step, the criterion has the highest level i that the output (access) set is equal to the common set, which is called level 1. After identifying these variables or variables, their rows and columns are removed from the matrix to obtain other levels and operations are repeated on other criteria.

After the levels have been determined again, the received matrix is rearranged in order of magnitude. The new matrix is called the cone matrix (Jetish et al., 2007). Outputs and inputs are extracted from the Compatible Initial Access Matrix, and for this, the number 1 in each row represents the output, and the number 1 in the column equal to the input, the results are as follows:

Criteria of Level 1

Criterion	Output	Input	Subscription	Level
C1	C1C7	C1C2C3C4C5C6C7C8	C1C7	1
C2	C1C2C4C7	C2C3C4C5C6C8	C2C4	
C3	C1C2C3C4C5C6C7C8	C3C5	C3C5	
C4	C1C2C4C7	C2C3C4C5C6C8	C2C4	
C5	C1C2C3C4C5C6C7C8	C3C5	C3C5	
C6	C1C2C4C6C7C8	C3C5C6C8	C6C8	
C7	C1C7	C1C2C3C4C5C6C7C8	C1C7	1
C8	C1C2C4C6C7C8	C3C5C6C8	C6C8	

Source: (Research Findings)

In the table above, Level 1 criteria are extracted, including C1 and C7, which are, in fact, "exports" and "agricultural sector characteristics". Now to determine the second level criteria, rows and columns remove these two criteria from the Adapted Access Matrix and re-calculate the output and input determinations. However, the results of Level 2 criteria are presented in the table below.

Criteria of Level 2

Criterion	Output	Input	Subscription	Level
C2	C2C4	C2C3C4C5C6C8	C2C4	2
C3	C2C3C4C5C6C8	C3C5	C3C5	
C4	C2C4	C2C3C4C5C6C8	C2C4	2
C5	C2C3C4C5C6C8	C3C5	C3C5	
C6	C2C4C6C8	C3C5C6C8	C6C8	
C8	C2C4C6C8	C3C5C6C8	C6C8	

Source: (Research Findings)

In the table above, Level 2 criteria are extracted, including C2 and C4 criteria, which include the variables "Commodity Exchange Microstructures" and "Operational and Operational Mechanisms". Now to determine the third level criteria, just remove the rows and columns of these two criteria from the Adapted Primary Access Matrix and re-calculate the output and input determinations. The results of Level 3 criteria are presented in the following table.

Criteria of Level 3

Criterion	Output	Input	Subscription	Level
C3	C3C5C6C8	C3C5	C3C5	
C5	C3C5C6C8	C3C5	C3C5	
C6	C6C8	C3C5C6C8	C6C8	3
C8	C6C8	C3C5C6C8	C6C8	3

Source: (Research Findings)

In the table, the level 3 criteria extracted include C6 and C8, which represent the variables "economic" and "cultural". Now to determine the fourth level criteria, just remove the

rows and columns of these two criteria from the Adapted Initial Access Matrix and re-calculate the output and input determinations. In this respect the results are presented in the table.

Criteria of Level 4

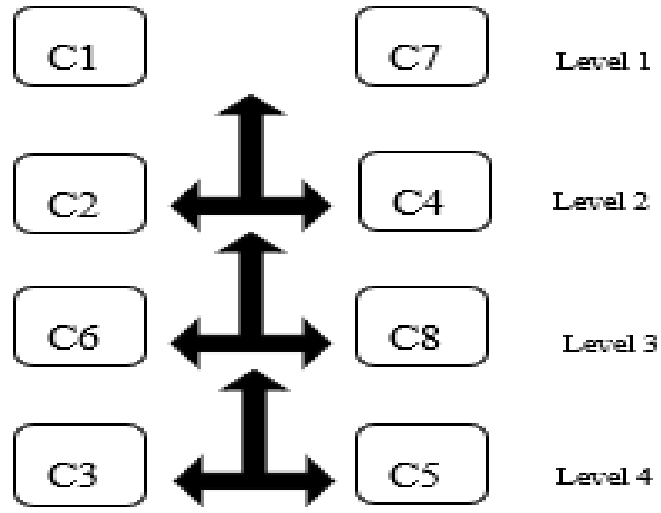
Criterion	Output	Input	Subscription	Level
C3	C3C5	C3C5	C3C5	4
C5	C3C5	C3C5	C3C5	4

Source: (Research findings)

In the table above, Level 4 criteria are extracted, including C3 and C5, which include the "Policies, Laws and Regulations" as well as "Infrastructure" variables.

Analysis using ISM network interactions ISM

In the fifth step, the research model is drawn and analyzed using the levels of variables and the final access matrix. In this study, the factors were classified into four levels, at the highest level, "policies and regulations" as well as "infrastructure" and at the lowest level were "exports" and "agricultural sector characteristics". The higher-level factors are less effective. In fact, the lower level factors are important as the basic basis for the development of a commodity deposit certificate in the agricultural sector. Other communications are outlined in the subnet diagram of ISM interactions. In this respect, if there is a relationship between the two variables i and j, it is represented by an arrow. The final diagram created using the surfaces section is as follows:



Source: (Research Findings).

Then, in order to identify and analyze the influence and influence of variables on the variables, their dependence and influence are measured using the McMach model. As illustrated in the figure below, the graph consists of two horizontal axes including "dependency" and the vertical axis containing "penetration power". In this graph, the research variables are divided into four categories according to their influence and degree of dependency:

1- Autonomous or autonomous variables (Zone 1) that have weak influence and dependence.

2 - Dependent variables (Zone 2) that have low penetration but strong dependence.

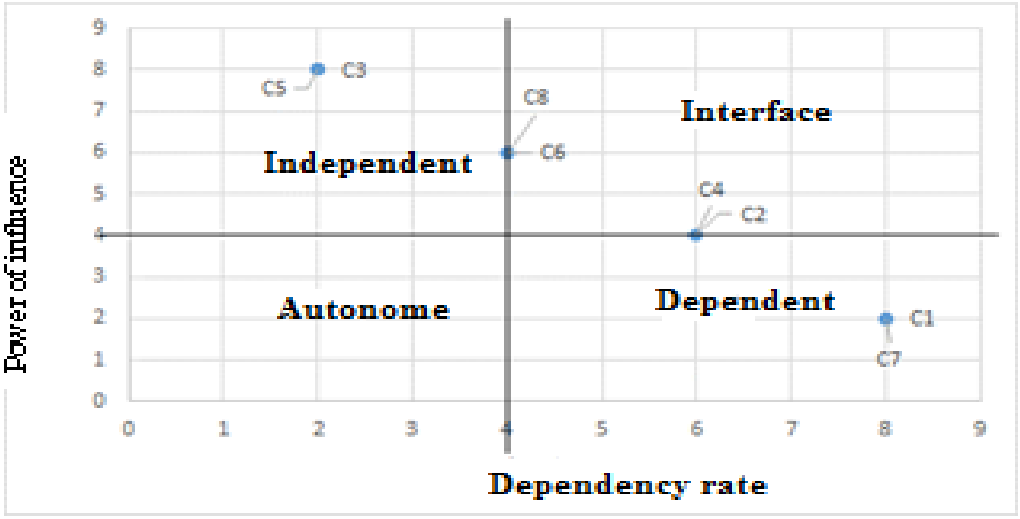
3 - Interface or link variables (area 3) that have high penetration and dependency.

4 - Independent variables (Zone 4) that have high penetration power and poor dependence (Ravi et al., 2005).

Autonomous variables in zone 1 are somewhat separate from other variables and have little correlation. Any action on the linked variables will cause other variables to change. Highly influential variables are called key variables. These variables fall into one of two groups of independent or related variables (Azar et al., 1977, p. 262). In this study, as it can be seen, none of the factors were included in the variable autonomy group.

This means that the relationship between the factors contributing to the development of the commodity deposit certificate in the agricultural sector is favorable and strong. Based on the above figure, it became clear that the only C3 and C5 criteria "policies and regulations" and "infrastructure" are independent variables. These variables have low dependence and high penetration power, in other words high impact and low impact are characteristics of these variables. C1 and C7 - "Exports" and "Agricultural Sector Properties" are also dependent on the form shown above. These variables have strong dependence and poor conductivity. These variables are generally high-impact and have little effect on the phenomenon. The rest of the criteria are interface type; these variables have a high degree of dependence and greater influence power. In other words, the impact of these criteria is very high and any small change in these variables will cause major changes in the system.

Dependency power matrix of dependency



Source: (Research findings).

5 Conclusions

At a glance, it can be interpreted that the influence of "policies and laws and regulations" and "infrastructure" as well as "economic" and "cultural" considerations in the development of commodity deposit certificates transactions in agriculture are more effective than other indicators. And addressing concerns related to these dimensions will greatly help to improve the status and dynamics of this issue. Therefore, taking into account the components of these dimensions, it is possible to summarize the strategic measures for the effective application of the Agricultural Commodity Deposit Certificate on the Iranian Commodity Exchange at levels 3 and 4 (important aspects) as follows:

A. Policies, Rules and Regulations:

- Definition of Certificate of Commodity Deposit as one of the most reliable securities in the banking network.

- Develop legal incentives for agricultural commodity trading.
- Develop appropriate tax incentives to encourage suppliers and buyers.
- Increase the capabilities of commodity investment funds for commodity deposit trading.
- Increase government attention to strengthen capital market structure.
- Launching local and regional stock exchanges.
- Increasing government attention to different production costs in provinces and provincial implementation of product pricing policy.
- Implementing Binding Regulations for Iranian State Trading Company on Prohibition of Off-Exchange Trading.
- Introducing restrictive criteria in the fight against monopoly by several specific actors in the agricultural market.
- Requirement of the Iranian State Trading Company to deliver on time and to fulfill its obligations within the commodity exchange.
- Implementation of the provisions of note 1 Article 1 of the Executive Regulation of Article 33 Enhancing the Productivity Law of the Agriculture Sector providing the list of tradable agricultural products on the stock exchange by the end of May each year by the Ministry of Agriculture Jihad.
- Implementation of Article 18 of the Law on the Development of New Financial Instruments and Institutions to exclude admission to commodity exchange from government pricing.

B- Infrastructure:

- Developing and strengthening trading and software systems for commodity deposit certificates.
- Integrating commodity exchange systems with other systems such as (customs, taxation, agriculture, agricultural jihad).
- Expanding the range of broker network activity in rural areas.
- Developing communication infrastructure with regional exchanges and international markets.
- Receiving warehouses outside of Iran and in free zones for export purposes.
- Development of infrastructure facilities and services (roads, transport companies, etc.).
- Creation and use of a comprehensive data warehouse in the country.

C- Economic Dimensions:

- Extensive attention to the concept of transparency in the structure of the country's economy.
- Creation of a comprehensive database of agricultural products, producers and consumers.
- Lack of pricing of agricultural products with government intervention and attention to the dimensions of free economy.
- The need for greater alignment between macroeconomic and monetary policy objectives with stock exchange functions (payment facilities for trading agricultural products, stewards, stock market returners).
- Create professional discipline among tax auditors in relation to tax-exempt agricultural activities.
- Using the capacity of marketers and the recognition of intermediaries in the development of commodity exchange transactions.
- Collaborate with international banks to transfer money on the trading platform to prevent money laundering.

D-Making Culture:

- Introduce banking network activists and holders of agricultural commodity deposit certificates.

- Introducing farmers, traders, intermediaries, agricultural policy makers and administrators (commodities and cooperatives) to commodity stock exchanges and certificates of deposit capacity.

This result suggests that for the development of commodity deposit certificates in the agricultural sector, more attention should be paid to relevant indicators and components in order to make more effective use of the commodity deposit certificate in the capital market. This study focuses on the economic, policy, infrastructure, executive, export, and cultural failures, as well as the specialized features of the agricultural sector, and on how to capitalize on the development of commodity deposit certificates. Its dimensions and components are based on surveys and interviews with experts, so it is likely that there are other affective dimensions not mentioned, so study other affective aspects (such as legal and social dimensions, social justice, regulatory dimensions, etc.) as well as use of other modeling methods (including factor analysis, Network Analysis (ANP) and Path Analysis (PA) in order to recalculate the components and dimensions and to calculate the significance coefficients and to verify the validity of the obtained relationships, it is recommended by future researchers. The present study is also focused on the Certificate of Deposit of Agricultural Products. Due to the trading of Certificate of Deposit based on other types of assets such as gold, the validity of these findings can be assessed on other types of asset-based Certificate of Commodity Deposit.

References

Abul Fazl Yerevan. (2015). Food security in agriculture Ministry of Agricultural Jihad, Organizing Office of Agricultural Jihad and Extension Network, 75 pages.

Adib Khu Kamran. (2014). Barriers to entry to the Agricultural Forum. Tomorrow Business Weekly news site. http: //www.tejaratefarad .com / 6118 24/8/1393.

Asadi Karam Ali. (2016). Strengthening rural cooperatives and agricultural commodities exchanges eliminates speculators. Mellat News Agency. https://www.icana.ir/Fa/News/321553, 11/02/2017.

Azar Adel, Khosravani Farzaneh, Jalali Reza. (2018). Analysis in Soft Operations: Problem Structuring Approaches. Tehran: Industrial Management Organization Publications, 364 pages.

Bahadivi Chegini Hamza. (2018). Exogenous anti-stimulants for commodity exchange. Economics Newspaper, https://www.donya-e-eqtesad.com/en/tiny/news-3435401 Date: 04/08/2018.

Beryl Richard. (1969). Risk and Return, Translated by Abdullah Tabrizi Hussein, Kowsari Abdullah. Tehran: Pishadaran Publications, 184 pages.

Bijeni Bahador. (2018). Barriers and Solutions for Foreigners in the Iranian Capital Market. Capital Market News (Senate) news / 48173 / http: //www.sena.ir.

Bijeni Bahador. (2018). Iran's capital market interaction with 9 countries. Trust Online News. https://etemadonline.com/content/164464 date 06/03/2018.

Bijeni Bahador. (2018). Measures to Expand the International Role and Foreigners' Presence in the Commodity Exchange. Commodity News, http://www.imereport.ir/news/20102.

Bijeni Bahador. (2018). The commodity exchange is very serious for entering the Iraqi market. World Economic Journal, 4375: 4/25/1397 Newsletter 3414192.

Chazri Amir Hossein. Introduction of Agricultural Exchange in Iran Journal of Agricultural Economics and Development, Eleventh Year, 43 and 44: 57-53.

Chazri Amir Hussein. (2005). Introducing Iran Agricultural Commodity Exchange and Future Five-Year Strategy, Fifth Iranian Conference on Agricultural Economics, Zahedan, Iranian Agricultural Economics Association, Sistan and Baluchestan University, https://www.civilica.com/Paper-IAEC05-IAEC05_090.html.

Evangelical Hassan Ali news. (2017). The role of commodity exchange in crossing the grammatical economy, Source of balance http://www.taadolnewspaper.ir/118411 Date 09/03/2018.

Great Turks, (2019). Producers' easy access to raw materials by launching Provincial Branches of Commodity Exchange. Commodity News Website, http://www.imereport.ir/news/23337/ 21/1/98.

Haji Vand Mehdi. (2017). Guaranteed Wheat on Commodity Exchange. Tasnim News Agency. https://www.tasnimnews.com/en/news/1573669 23/9/1396.

Hamed Sultanate. (2017) Certificate of Commodity Deposit, a tool for financing the agricultural sector. Third Islamic Finance Conference. Tehran, Islamic Financial Association of Iran December 12. https://www.civilica.com/Paper-CIIF03-CIIF03_017.html.

Hamed Sultanate. (2017). Iranian Commodity Exchange Programs for Transfer with World Exchanges. Stock Exchange site. http://boursepress.ir/news/65782 date 31/10/2017.

Hamed Sultanate. (2017). Sale of agricultural products on stock exchange before harvest. Iran News Site Economist, http://iraneconomist.com/en/news/170117 26/08/2017.

Hamed Sultanate. (2018). Four Proposals to Strengthen the Stock Exchange to Parliament. Stock Exchange site. http://boursepress.ir/news/114764 21/01/2019.

Hamed Sultani nejad. (2017). Commodity Exchange Solution for Tax Certificate of Commodity Deposit. World Newspaper website https://www.donya-e-eqtesad.com/en/tiny/news-3302806 date 21/10/20117.

Hamed Sultaninejad. (2019). Records of last year's commodity exchange and future plans. Stock Exchange site. http://boursepress.ir/news/123121 Date 24/03/2019.

Hamed Sultannejad. (2017) Launch a joint trading platform with foreigners. Trade Journal No. 1165, p. 4. Date: 01/10/2017.

Hosseini Uni Sayed Ali. (2018). Say hello to the Agricultural Exchange. Caspian 24 site.

Hussein's weaponry. A foreign exchange treaty is not a good way, IRIB News Agency Website. http://www.iribnews.ir/en/news/2228857 date 15/09/2018.

Jaafari Dolatabadi Abbas. (2018). People have little information on stock exchange. Stock exchange news site 24. https://bourse24.ir/news/lu1uy3hprf15 Tasman source.

Jitesh Thakkar, Deshmukh S.G, Gupta A.D, Ravi Shankar. (2007). Development of a balanced scorecard An integrated approach of Interpretive Structural Modeling (ISM) and Analytic Network Process (ANP). International Journal of Productivity and Performance Management, 56 (1): 25-59.

Jovicic Daliborka, Jeremic Ljiljana, Jovanovic Zoran. (2017). Financing agribusiness: insurance coverage as protection AGAINST CREDIT risk of warehouse receipt collateral. Economics of Agriculture. 2: 467-482.

Mahanta Devajit. (2012). Review of warehouse receipt as an instrument for financing in India. International Journal of scientific & technology Research. Vol. 1, ISSN: 2277-8616. pp: 42-45.

Oma's staff. (2007). Research Methodology in Management Translated by Saebi Mahmoud, Shirazi Mahmood. Fifth Edition. Tehran: Higher Education and Research Institute of Management and Planning Publications, 560 pages.

Papi Zadeh Abbas. (2014). Iran's Big Agricultural Problem: Product Market Opacity (Stock Market Problem).

Rahmani Ali, Sharifi Sediqa. (2013). Evaluation of Compliance with International Financial Reporting Standards and Iranian Accounting Standards. Proceedings of the 11th Iranian National Accounting Conference, Mashhad, Ferdowsi University.

Rahmani Muhammad. (2012). Investigation of Monetary and Financial Policies on Tehran Stock Exchange Markets. M.Sc., Faculty of Economics, University of Tehran.

Rajavi Hussein. (2018). Investigation of Strategies for Development of Education and Culture Exchange in Commodity Exchange. Twenty-sixth Specialized Agricultural Products. Exchange News site. http://boursenews.ir/en/news/184091 Date 28/11/2018.

Ravi, V. Shankar, R. Taiwari, M.K. (2005).” Productivity improvement of a computer hardware supply chain”. International Journal of Productivity and Performance Management, 54, (4), 239-255.

Rostami Ali, Ali Mohammadi Maysam. (2015). Capital Market Microstructures. Tehran: Nora Publications. 187 pages.

Sadeghi Sadeghi, Mojavarian Seyed Mojtaba, Hosseini Eekhan Seyed Ali. (2017). Prioritizing the Factors Affecting the Success of a Commodity in the Agricultural Ring of Iran Stock Exchange. Journal of Agricultural Economics and Development, 31: 37-27.

Tasnim News. (2018). Announcement of Guaranteed Purchase Rate of Agricultural Products. https://tn.ai/1882037. Date: 30/11/2018.

Towo N, Kimaro P. (2014). Warehouse receipt system: A solution towards smallholder farmers' financial constraints. International Journal of Economics, Commerce and Management, ISSN: 23480386.

World Bank Group. (2015). Warehouse Receipt Financing the Experience of Access Bank Madagascar. Agriculture finance support facility. 6 p.

Ahmed & Ned Said. (2018). Principles and Principles of Investing in Stock Exchange. Third edition. Tehran: Terme Publications, page 264.

Kaveh Zargaran. (2018). Exports of agricultural products exempt from the requirement of currency refund. Specialized Journal of Business Development. http://www.tejaratdaily.com/big-business/6291 date 14/05/2018.