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Full Length Research Paper

The choice of feasible commodities for futures trading: A study of Iranian agricultural commodities

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In this paper an attempt is made to determine the most suitable agricultural commodities to be adopted for establishing a futures market in Iran. Two different approaches are adopted: the first involves identifying factors that contribute significantly to the success or failure of existing agricultural commodities futures contracts in established futures markets. The second involves simulating the hedging performance of potential commodities to determine the optimum contract choice. The results suggest that saffron, pistachios and rice are the three most feasible commodities to be adopted in order to establish commodity futures trading in Iran.

Key words: Agricultural futures contracts, commodity specifications, hedging performance, Iran.

INTRODUCTION

The employment of futures contracts has expanded to the point where they are now customary instruments for managing the market risks of various assets such as agri-cultural commodities, metals, energy-related contracts, stocks and equities. Apart from risk management the emergence and expansion of futures markets promotes many other valuable effects such as enhancing the price discovery processes, and promoting transparency and liquidity. In the case of the commodities markets establi-shing futures exchanges may serve to reform market structures as well as promote the above mentioned bene-fits (Du, 2004; Purcell and Koontz, 2003).

The traditional agricultural products markets in Iran are faced with numerous problems. Not the least of which is the vast fluctuation of prices in the agricultural sector which is a crucial issue with many effects. This instability in agricultural products' prices increases the farmers' uncertainty about their likely incomes (Helmberger and Chaves, 1996) . Furthermore, the non-transparency and non-liquidity of information in local markets for agricultural products is coupled with the wide spread presence of middlemen in various sections of distribution and market-ing. Further effects are the undeniable existence of for-ward purchasing based on unfair prices, and the shorta-ges of a competitive, efficient and broadly-based market for the transaction of agricultural products and the ineffi-ciency of the distribution network. These are some of the major problems that the Iranian agriculture sector strug-gles with. The vast majority of these problems are related to low level of agricultural development in the country and also to the traditional and inefficient structure of the markets for agricultural products. Despite substantial gov-ernment investment in the last two decades and expendi-ture of millions of Rails in attempts to promote the correc-tion of these structural problems, relevant and consistent outcomes have not yet been achieved in this sector.

The emergence of an agricultural commodity futures exchange as a new, broadly-based, integrated and orga-nized market could help to solve these problems (Du, 2004; Purcell and Koontz, 2003). It is frequently the case that failure of the traditional markets and the related inef-ficiencies which have led to various forms of difficulties such as increasing price-risk or high price fluctuations has been one of the most important motivations for the establishment of these markets in many countries, espe-cially in the developing countries (Canadian Farm Mana-gement Council, 1998).

The list of futures contracts introduced across the tota-lity of world markets is very extensive. Carlton (1984) estimated that 180 different futures contracts existed from 1921 to 1983 in the US. From 1975 to the early 1990s, the Commodity Futures Trading Commission (CFTC) ap-proved trading for over 250 contracts, plus over 90 opt-ions on futures contracts (Leuthold, 1994).

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Nevertheless, most of new futures contracts fail (Brorsen and Fofana, 2001). Some studies have shown that probably no more than one-third of futures contracts succeed (Silber, 1981) . This has prompted research into why some contracts fail whereas others succeed, and into the establishment of the characteristics of successful cont-racts. For examples; see Gray (1966), Powers (1967), Black (1986), Brown et al. (1991), Tashjian (1995), Harris (1998), Karagozoglu and Martell (1999), Longin (1999), Brorsen and Fofana (2001), Pennings and Garcia (2001), Pennings and Leuthold (2001), Meulenberg and Pen-nings (2002), Bollen et al. (2003) and Pennings and Egel-kraut (2003).

According to these studies the designing of a viable futures contract is done in several different steps. The first and most important step in the case of commodity markets is the determination of the suitable commodities for futures trading.

For example the first approach, which was noted by Black (1986) in the identification of a successful contract innovation was that of relevant 'commodity characteristics'. This focuses on whether the commodity is storable, homogeneous, subject to large price fluctuations, has a broad cash market, unrestricted movement of supply with low delivery cost and whether the commodity has experienced a breakdown in forward contracting. Defining a successful contract as being one that maintains both consistently high trading volume and open interest, he concluded that contract success is related to cash market size, cash price volatility, the risk reduction ability of the contract and liquidity costs. Also Brorsen and Fofana (2001) examined the effects of several factors on the success or failure of agricultural futures contracts. Important factors included characteristics for which no data exist, such as homogeneity, vertical integration, buyer concentration and activeness of the cash market. Utilizing the Delphi approach for characteristics without data, they found that an active cash market is necessary for futures contract success, as this variable alone perfectly predicts the existence of a futures contract. Other variables, such as vertical integration, homogeneity and buyer concentration, are also important for explaining differences in volume and open interest among existing futures markets.

So the main purpose of the present study is the implementation of this first step in designing viable futures contracts for Iranian agricultural commodities. In this way the most suitable agricultural commodities are selected by utilizing two criteria. In the first approach, the most important factors that contribute significantly to the success or failure of agricultural commodities futures contracts of the world's main futures markets are identified and then according to the importance rating attached to each factor, the best or the most suitable commodities for trading as futures contracts in Iran are selected. In the second approach, given that the most important function of futures contracts is to provide scope for market risk management of the farmers, the utilization of simulations of the hedging performance of each commodity is used to select the commodities which have high probabilities of acceptability in a futures market for use by farmers.

Finally, the most suitable commodities are selected according to the results of both of these methods. Since all of the trades in the Iranian exchanges (both in the stock and the commodity exchanges) are made by cash, these contracts cannot play the role of hedging the producers in stock or commodity markets (Hull, 2000; Purcell and Koontz, 2003). Therefore, the establishment and utilization of futures contracts could play a key role in this context. This study is expected to identify part of the possibilities or scope for establishing such markets in the Iranian agricultural sector.

MATERIALS AND METHODS

In this study these two methods are used in order to determine the feasible agricultural commodities to be used for futures trading in Iran. In the first method the commodity selection is done on the basis of the most important factors likely to influence the success of agricultural futures contracts according to the quantitative evidences available from the world's main agricultural futures markets.

Following Black (1986) and Brorsen and Fofana (2001), a successful contract is defined as one that maintains a consistently high volume of trade. Hence, determining those factors contributing to the success of agricultural commodities futures contracts is equivalent to determining factors affecting volume.

Some researchers have introduced numerous criteria to provide explanations for the success or failure of various futures markets. In the present study these criteria are consistently summarised in the form of six factors: relative basis risk (RB), spot prices fluctuation (SPF), cash market size (CMS), liquidity cost (LC), homogeneity (H) and commercialization rate (CR).

Basis risk is defined as the fluctuation of the basis (Figiel et al., 1997; Hull, 2000). As the basis is the difference between the spot price of commodity to be hedged and the futures price of contract to be used, the basis risk could be defined as the percentage of the spot prices changes that are unexplained by the futures price changes. So the basis risk of each commodity *i* could be calculated as the 1 minus the coefficient of determination of equation 1 (Brorsen and Fofana, 2001; Figiel et al., 1997).

$$\Delta SP_{it} = \alpha_i + \beta_i (\Delta FP_{it}) + \varepsilon_{it} \qquad (1)$$

Where represents monthly changes, SP_{it} and FP_{it} show the spot and futures prices of commodity *i* in time *t* respectively and $_i$ and $_i$ are parameters to be estimated.

The aim of calculating the relative basis risk of each commodity in each market is the comparison of the basis risk of utilizing the futures contracts of the other commodities or the other markets with the basis risk of that commodity in that market. The basis risk of commodity *i* using the futures contracts of commodity or market *j* is calculated as the 1 minus the coefficient of determination of equation 2.

$$\Delta SP_{it} = \alpha_{ij} + \beta_{ij} (\Delta FP_{jt}) + \varepsilon_{ijt} \qquad (2)$$

So in this study the relative basis risk for each commodity in each market is calculated as the percentage ratio of the average basis risk of utilizing the futures contracts of the other commodities or the other markets and the basis risk of that commodity in that particular market.

It is expected that there exists a direct relation between the relative basis risk and the futures contracts' trading volume. If the measure is bigger than 100 for the relative basis risk the implication is that the producers of a commodity in a specific market will be confronted with higher basis risk than if they used futures contracts of the other commodities or the other markets rather than that commodity in that particular market. In such a condition the producers prefer to use the futures contracts of the same commodities in the same market and it causes an increase in the futures trading volume.

The spot price fluctuations are determined in this study simply by calculating the variances of monthly cash market prices. As different commodities have different values in the same weighted units, the variances of calculated spot price indices (1/2000=100) are used as representations of spot prices fluctuations. Also the coefficients of variation of spot prices might be a good alternative measure for this. In a market with high levels of price volatility, the producers are more likely to use futures contracts in order to reduce market risk. So a positive relation is expected between spot prices fluctuations and futures trading volumes in the results.

The size of the cash market is another important factor which influence is investigated on futures contracts trading volumes in this study. The total supply value of each commodity in each year is taken as a measure of the cash market size of that commodity in that year. According to definition, futures trading value is a direct function of cash market size (relation 3) (Black, 1986; Pennings and Meulenberg, 1997).

$$FTV_i = CMS_i \, .HR_i \, .VLCT_i \qquad (3)$$

Where, FTV_i, HR_i and $VLCT_i$ are the futures trading value, hedge ratio and trading velocity of commodity i respectively. Velocity shows the number of times the commodity i is traded on the futures market. A viable and successful secondary market is less likely to exist without a strong and broadly-based initial market. A higher cash market size could create higher futures trading volume by attracting more hedgers and speculators into the futures market.

The measurement of the cost of liquidity cost uses a comparative criterion. If there is higher liquidity in the futures market for a specific commodity the implication is that there is a higher cost in the futures market for the other commodities. As the degree of liquidity in a market is related to size of that market, in this study the average of the cash market size (total supply value) of the other markets is considered as a relative measure of the liquidity cost in a specific market. As it is a cost in utilizing the futures contracts, an indirect relation is expected between the liquidity cost of each market and the futures trading amount in that market.

Homogeneity is the only qualitative factor in this study. Each commodity is given a value between 1 and 10 as its homogeneity value, according to the results of a questionnaire of responses from some agricultural science experts. The nearer the value to ten for each commodity means the more homogenous the commodity is perceived to be. According to definition a commodity futures contract is an agreement between a buyer and seller for trading a commodity with a specific quantity and quality at a determined price at the time of expiration of that contract (Lerner, 2000). Then the commodity has to be easy to grade and to be interchangeable. That is why the degree of homogeneity is taken as an important factor in selecting commodities for futures trading in different studies as well as in this study.

The commercialization rate is the last factor which is considered as an important factor influencing the success of futures contracts. This rate could be achieved by dividing the total amount of exports to the total amount of supply in each year multiple to 100. This factor is calculated as a representation of cash market activeness. Where the self consumption rate of a commodity is lower and its commercialization rate is higher, the potential power of the market for attracting more participants will be higher.

Our objective in the first approach is to measure the degree of importance of the above mentioned factors in their contribution to the success of the world's main futures agricultural markets in order to rank and select the best commodities for futures trading in Iran. So all these six factors are calculated for the commodities and markets which are introduced in Table 1 during the ten years time period from 1996 to 2005, utilizing data from Data stream and the FAO databases.

Besides the required data for calculating the six previously mentioned factors, the related yearly data of futures trading value for all commodities in all markets was downloaded from the Datastream database as well. Once the values were obtained for all six explanatory variables and the one 'explained' variable for each commodity in each market for the considered ten year sample period, the relation 4 shown below could be estimated in a pooled data estimation framework.

$$FTV_{i,t} = f\left(RBR_{i,t}\, , SPF_{i,t}\, , CMS_{i,t}\, , LC_{i,t}\, , H_i\, , CR_{i,t}\right) \quad (4)$$

After the estimation of each factor coefficient which is required to show the direct importance or association of that factor on futures trading value, the next requirement is to calculate the values of these factors for the most important agricultural commodities in Iran by applying the estimated coefficients to them. The 25 most important agricultural products of Iran which are considered in this study consist of: almonds, apples, apricots, barley, beans, chickpeas, corn, cotton lint, dates, grapes, lentils, onions, oranges, pistachios, potatoes, rice, saffron, sesame seed, soybeans, sugar beet, sunflower seed, tea, tomatoes, walnuts and wheat. The required data for calculating the six required factors were prepared from data obtained from the Ministry of Agriculture and the Customs Administration of Iran over the same ten year time period of 1996- 2005. The first ranking of Iranian agricultural commodities could be done by applying the estimated degree of importance for each of the investigated factor in relation 4 to the calculated amounts of these factors in the case of each commodity in Iran. The simulated value of futures trading and the ratio of this value and cash market size for each commodity in each market would be used in order to achieve this ranking. Note that, while there is not a futures market in Iran the futures prices in this study are simulated according to relation 5 shown below (Hull, 2000; Purcell and Koontz, 2003).

$$F_{t,t-1} = S_{t-1}\, e^{365c} \qquad (5)$$

Where $F_{t,t-1}$ is the futures price in year t which is determined in year $t-1$, S_{t-1} is the spot price in year $t-1$ and c is a constant value which involves the total daily carry costs (storage, interest, and convenience yield) of one unit of related commodity from year $t-1$ to year t.

In the first approach the necessary conditions required for an agricultural commodity to be used in futures trading according to the evidence from the other futures markets would be considered. But this is not sufficient. The first group of participants in an agricul-tural futures market are likely to be farmers who trade the futures contracts for hedging purposes in order to manage traditional market risks. In order to have the best results in the determination of the feasible agricultural commodities for futures trading in Iran, it is required that a consideration of the optimization of the farmers' decision making is taken into account as well.

Consider a rational producer in year $t-1$ who optimizes his/her production decision making by considering both expected value and variability of farming profit in year t . This farmer would manage the confronted market risk by selling a specific amount of futures contracts (FC_t) for delivery in year t at the futures price of $F_{t,t-1}$ which is determined in year $t-1$ but will be paid in year t . So the profit function of this assumed farmer might be shown by relation 6.

Table 1. The worlds' main agricultural futures markets selected.

Country	Futures Market	Commodity
United States	CBOT	Wheat Oat Corn Soybeans soybean meal soybean oil
	NYBOT	Sugar Coffee Cocoa Cotton
	CME	Cattle Hog
United Kingdom	LIFFE	Wheat Sugar Coffee Cocoa
France	LIFFE	Corn
Brazil	BM&F	Sugar Coffee

$$\pi_t = TR_t - TC_t + \left(F_{t,t-1} - S_t\right)FC_t \qquad (6)$$

Where π_t is the profit amount in year *t* achieved by farming and futures trading, TR_t- TC_t is the difference between total revenue and total cost or the profit amount in year *t* without utilizing the futures contracts and S_t is the spot price in year *t*.

The required data for all the 25 above mentioned agricultural commodities in the second approach during the time period of 1996 - 2005 were obtained from the Ministry of Agriculture of Iran.

Although establishing a futures market could affect the expected value of TR_t- TC_t in each year by changing the cash prices levels and/or cropping patterns (Canadian Farm Management Council, 1998; Helmberger and Chaves, 1996), but as our purpose in the second approach is determining the farmers' optimal preference for utilizing the futures contracts for each commodity, the amounts of TR_t- TC_t as well as $F_{t,t-1}$–S_t are taken as being exogenous. Given this assumption the optimization problem of all Iranian farmers in producing each commodity could be shown as model 7 below:

$$\underset{FC}{Min}\, Var(\pi_t) = Var(TR_t - TC_t) + FC^2.Var(F_{t,t-1} - S_t) + 2FC.Cov\left[(TR_t - TC_t),(F_{t,t-1} - S_t)\right]$$

$$FC.E\left(F_{t,t-1} - S_t\right) \geq 0 \qquad (7)$$
$$FC \geq 0$$

Running model 7 gives us the optimal amount of futures trading which minimizes the market risks of each commodity without decreasing the initial amount of farming expected profit.

Having the optimal amounts of FC_i for each commodity, it is possible to compare it with the expected total production of that commodity to calculate its Hedge Ratio according to the relation 8 (Kuwornu et al., 2005). Calculation of this ratio and also the monetary value of FC_i for each commodity could give suitable criteria in order to rank the commodities for futures trading from the producers' decision making optimality point of view.

$$HR_i = \frac{FC_i}{E(TP_i)} \qquad (8)$$

Finally, comparison of the results of ranking by both methods might give a pretty comprehensive idea for determining the most feasible agricultural commodities for entering into futures markets in Iran.

RESULTS AND DISCUSSION

In order to rank the commodities according to the first approach, the coefficients for the five variables RB, SPF, CMS, LC and CR were calculated for commodities and markets introduced in Table 1 during 1996 to 2005 as described in the methodology section. Homogeneity was the only qualitative variable used in this study. To quantify this variable for use in this study a questionnaire survey work done using some agricultural science experts who suggested values between 1 and 10 for all considered commodities. Table 2 shows the results of this questionnaire survey.

Values presented in the table reflect the results of a questionnaire survey of some agricultural science experts who suggested values between 1 and 10 for the degree of homogeneity of commodities included.

Given the above, it is now possible to estimate the relation in expression 4 between the futures trading values and all of the six described factors of influence. Relation

Table 2. The quantitative amounts of homogeneity.

Commodity	cattle	cocoa	coffee	corn	Cotton	hogs
Homogeneity	6	8.5	8.5	8	7.5	6
Commodity	oat	soybeans	soybean meal	soybean oil	Sugar	wheat
Homogeneity	8	7.5	9	9	8.5	8

shows the results of this estimation. Any variables with coefficients not significant have not been shown in this relation.

$$FTV_{i,t} = \underset{(0.1358)}{0.3523}RBR_{i,t} + \underset{(0.0867)}{0.1733}SPF_{i,t} + \underset{(0.3343)}{7.1733}CMS_{i,t} - \underset{(0.3296)}{1.6510}LC_{i,t} + \underset{(1.4585)}{8.0137}CR_{i,t} + \varepsilon_{i,t} \quad (9)$$

Looking at the estimated coefficients in this relation it is clear that the signs of all factors are as expected. The coefficient value of the cash market size shows that the size of futures market is more than sevenfold of cash market size in average, assuming constant values for the other factors. According to the relation 3, this effect could be the result of the multiplication of the hedge ratio and velocity terms in the futures markets considered. It illustrates that the minimum amount of velocity at the extreme point of a unit hedge ratio is 7.2 on average. Then the average amount of velocity in these markets might be much higher than 7.2.

The coefficient of the commercialization rate also shows the high importance of the activeness of cash markets in the success of futures contracts. As in relation 9, the cash market size and futures trading values are in 100 million dollars and the commercialization rate is in percentages. It could be said that assuming constant value for the other factors, increasing the export value by 0.9% of cash market size is equivalent to increasing the total size of cash market equal to 100 million dollars in the case of influencing the futures trading value.

On the other hand increasing the average size of the other markets that equal to 434 million dollars could compensate the effect of a 0.9% increase in CR or 100 million dollars increase in CMS by the opposite influence of increasing the liquidity cost in the same market.

Also while the amount of relative basis risk in relation 9 is in percentage terms, each 2.04% increase in this factor for example by decreasing the basis risk in the commodities related futures market would have the same affect as a 10 million dollar growth in the size of cash market on the viability of the futures market. This effect is also equal to increasing the volatility (variance) in the spot price index by 4.14 units.

But the coefficient of the homogeneity factor was not significant in this study. It does not necessarily declare the reduced importance of this factor in selection of commodities futures trading. There is no doubt about the importance of grading and standardization in commodity exchanges. As the selected futures markets are the main world's developed markets with a long background, their strong ability and experience in the grading process and commodity qualification could be one of the reasons for compensating the negative effect of the reduced homogeneity levels of products such as cattle and hogs on the futures trading value. In other words the grading and standardization conditions in commodity exchanges are partly related to the improvement and developed level of the futures markets themselves in this process rather than the homogeneity level of the commodity.

After calculating the average values of the five factors RBR, SPF, CMS, LC and CR during 1996-2005 for all 25 agricultural commodities in Iran which are introduced in the methodology section, the estimated coefficients of relation 9 were applied to them. Note that all prices and monetary values utilized in this study are after deflation using the relevant price index.

Table 3 shows the results of ranking the top ten commodities according to the simulated values of futures trading values obtained in the first approach.

In the case of saffron which is the first commodity in this ranking, more than 63% of simulated futures trading value would have been created by effect of spot price fluctuations. Saffron has the maximum level of volatility in spot prices across all 25 commodities. Also the comercialization rate of saffron has about a 32% share in explaining the total value of futures trading. After pistachios, saffron has the maximum percent of CR between all considered commodities as well.

Table 3. Top ten commodities according to the simulated futures trading values

Ranking	Commodities
1	saffron
2	Pistachios
3	Wheat
4	Almonds
5	Chickpeas
6	Rice
7	Dates
8	Tea
9	Apples
10	Apricots

Table 4. The results of second approach.

Ranking	Commodities	Hedge Ratio (%)	Hedging Effectiveness (%)
1	pistachios	88.15	53.41
2	cotton lint	57	18.82
3	saffron	48.37	9.44
4	apples	46.45	35.56
5	tea	41.03	22.24
6	oranges	39.29	31.64
7	rice	37.75	38.19
8	walnuts	37.27	9.90
9	potatoes	36.85	39.76
10	onions	32.71	66.83
11	tomatoes	29.32	26.72
12	grapes	28.45	53.59
13	dates	26.72	48.75
14	sesame seed	26.59	26.88
15	apricots	15.96	4.50
16	maize	13.2	0.50
17	almonds	11.48	0.70
18	lentils	5.51	1.65
19	sunflower seed	5.41	0.15
20	chickpeas	0.97	0.06
21	soybeans	0.00024	0
22	barley	0.00001	0
23	sugar beet	0	0
24	wheat	0	0
25	beans	0	0

Hence, the CR of pistachios has the most affect equal to 74% on the futures trading value of this commodity. Also 20% of this value is the effect of the cash market size of pistachios which is the maximum size after wheat and rice.

Wheat has the maximum amount of cash market size and that is why wheat is the third commodity in this ranking. Almost 82% of total simulated wheat futures trading values are explained by the size of the cash market. This percentage is 70% for rice.

The simulated amounts of the futures trading values of the 25 considered commodities in the first approach showed the potential capability for each commodity to have a successful futures market on the base of them. Thus the illustrated ranking in Table 3 is a potential ranking. This potentiality might not appear in reality whilst the farmers do not have enough hedging incentive for entering the futures markets. As described in the methodology section, the second approach attempts to measure this incentive for each commodity. The number of futures contract which could be used to minimize the profit variance of farmers so as to keep their expected profit before using futures contracts is determined in the second approach. Table 4 shows the results of this approach with a ranking according to the estimated hedge ratio amounts.

The hedge ratio according to the relation 8 is the ratio of total estimated amount of futures contract undertaken by farmers and the expected total production which is the annual average production of each commodity during 1996 – 2005. Also the hedging effectiveness shows the total percentage of variance reduction after utilizing futures contracts.

According to these results, saffron and pistachios which had the higher ranks in the first approach (Table 3) also have good conditions on these hedge ratio metrics and measures of hedging effectiveness as well. By contrast, the wheat contract, which had already been selected for its huge cash market size has a very weak condition in terms of attracting farmers to the futures market for hedging purposes. It could be a result of heavy intervention by the Iranian government in the wheat market. These interventions by means of price supports and stabilizations could affect the negative covariance of the basis and the farmers' profit by decreasing it even to the extent of producing positive levels. After wheat, almonds and especially chickpeas also have poor situations in Table 4. Yet rice, which was the sixth commodity in the rankings of Table 3 is a good choice as it is the third ranked commodity after saffron and pistachios for futures trading. The entry of the 37.75% of total rice production in Iran to the futures market results in creating 766 million dollars in this market. Dates, tea and apples also could be three of the other final choices for futures trading. Attracting the 46.45% of total apples production and 26.72% of total dates production produce an entry value respectively of 347 and 132 million dollars additional value to the futures market. The hedge ratios of apples and tea are more than 40% and the hedging effectiveness of them are also within accepted levels. The hedging performance of dates (48.75%) has the third rank across all 25 commodities.

Conclusion

The main aim of this paper was the determination of the most suitable agricultural commodities for establishing a futures market in Iran utilizing two different approaches. The first approach was based on finding the most influential factors on the success of futures contracts and measuring the importance or relative ranking of them according to quantitative evidence from some of the world's successful agricultural futures markets. The first potential ranking of Iranian agricultural commodities for futures trading was achieved by applying these measures to produce the results of the first approach. As the utilization of this potential ranking of commodities for futures trading could not be successful without the attraction of their producers, in the second approach the capability of futures contracts for each commodity for selection and adoption by farmers as a hedging instrument was investigated.

According to the results of this study, relative basis risk, spot price fluctuation, cash market size, liquidity costs and commercialization rates are the five most important factors which could explain the success of futures market in terms of futures trading value in that market. Liquidity cost is the only factor which affects the volume of futures trading negatively. Commercialization rates, cash market size and spot price fluctuation have the greatest effects across these factors in the choice of a commodity for futures trading. Also the results showed that the effect of quality conditions of commodities in terms of their homogeneity and its influence on success or failure of futures contracts is mainly related to the individual futures markets' abilities and developments in terms of grading and standardization systems.

Despite the ranking commodities using the first approach, the results of the second approach showed that although some of the commodities have acceptable levels of the necessary conditions for entering them into futures market, they do not have enough attraction for potential participants, particularly the farmers considered for their use as futures contracts in terms of their estimated hedge ratios and hedging effectiveness.

According to the results of this study saffron, pistachios and rice are the three most feasible commodities to be adopted in order to establish futures trading in Iran. After these commodities dates, tea and apples are at a secondary level of suitability for their entry to the futures market.

REFERENCES

Black DG (1986), Success and Failure of Futures Contracts: Theory and Empirical Evidence, Monograph Series in Finance and Economics. Graduate School of Business, New York University.

Bollen N, Smith T, Whaley R (2003). Optimal Contract Design: For Whom? J. Futures Markets, 23: 719-750.

Brorsen W, Fofana NF (2001). Success and Failure of Agricultural Futures Contracts. Journal of Agribusiness, 19: 129-145.

Brown SH, Laux P, Schachter B (1991) On the existence of an optimal tick size. Review of Futures Markets, 10: 50-72.

Carlton DW (1984). Futures Markets: Their Purpose, Their History, Their Growth, Their Successes and Failures. J. Futures Markets, 4: 237-271.

Canadian Farm Management Council (1998). Managing Market Risk. Second Editions, Minister of Public Works and Government Services, Canada.

Du W (2004). International Market Integration under WTO: Evidence in the Price Behaviors of Chinese and US Wheat Futures. Selected paper, American Agricultural Economics Association.

Figiel S, Olsztyn A, Scott T (1997). The impact of government policies on the relationship between polish and world wheat prices. World Bank.

Gray RW (1966). Why does futures trading succeed or fail: an analysis of selected commodities. In Futures Trading Seminar, 3: 115-137.

Harris L (1998). Optimal Dynamic Order Submission Strategies in Some Stylized Trading Problems. Financial Mark. Institut. Instruments 7(2).

Helmberger PG, Chaves JP (1996). The Economics of Agricultural Prices. Prentice Hall, New York.

Hull, J (2000). Options, Futures, and other Derivatives. Prentice Hall, New York.

Karagozoglu AK, Martell TF (1999). Changing the Size of a Futures Contract: Liquidity and Microstructure Effects. Finan. Rev. 34: 75–94.

Kuwornu JKM, Kuiper WE, Pennings JME, Meulenberg MTG (2005). Time-Variying Hedge Ratio: a Principal-Agent Approach. J. Agric. Econ. 56: 417 - 432.

Lerner RL (2000). The Mechanics of the Commodity Futures Markets: What They Are and How They Function. Mount Lucas Management Corporation.

Leuthold RM (1994). Evaluating Futures Exchanges in Liberalising Economies. Development Pol. Rev. 12: 149-163.

Longin F (1999). Optimal Margin Level in Futures Markets: Extreme Price Movements. J. Futures Mark. 19: 127–152.

Meulenberg MTG, Pennings JME (2002). A Marketing Approach to Commodity Futures Exchanges: A Case Study of the Dutch Hog Industry. J. Agric. Econ. 53: 51-64.

Pennings JME, Egelkraut TM (2003). Research in Agricultural Futures Markets: Integrating the Finance and Marketing Approach. Agrarwirtschaft, 52: 300-308.

Pennings JME, Garcia P (2001). Measuring Producers Risk Preference: A Global Risk-Attitude Construct. Am. J. Agric. Econ. 83: 993-1009.

Pennings JME, Leuthold RM (2001). Commodity Futures Contract Viability: A Multidisciplinary Approach. NCR-134 Proceedings, pp. 273-288.

Pennings JME, Meulenberg MTG (1997). New Futures Markets in Agricultural Production Rights: Possibility and Constraints for British and Dutch Milk Quota Markets. J. Agric. Econ. 49: 50-66.

Powers MJ (1967). Effects of Contract Provisions on the Success of a Futures Contract. J. Farm Econ. 49: 833-843.

Purcell WD, Koontz SR (2003). Agricultural Futures and Options, Principles and Strategies. Second Editions, Prentice Hall, New York.

Silber WL (1981). Innovation, competition, and new contract design in futures markets. J. Futures Mark. 1: 123-155.

Tashjian E (1995). Optimal Futures Contract Design. The Quart. Rev. Econ. Finan. 35: 153-162.