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Japanese Candlesticks and Qatar Exchange

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***Abstract*— Technical analysis or charting is a technique which uses the patterns of the price history of a financial instrument in order to provide indications on the future behavior of prices. It contains many instruments; one of them is Japanese candlestick. This research paper tries to indicate to role of this instrument in forecasting the future of Qatar Exchange (one of the important Arab financial markets). The results show that the Japanese candlestick can predict the future of the market to a large extent, especially in the monthly candlestick chart.**

Keywords*— technical analysis; Japanese candlestick; Qatar Exchange; Financial instruments; Arab financial markets.

I. INTRODUCTION

As long as financial markets have existed, people have tried to forecast them, in the hope that good forecasts would bring them great fortunes. In financial practice it is not the question whether it is possible to forecast, but how the future path of a financial time series can be forecasted. Technical analysis is a forecasting method of price movements using past prices, volume, and open interest. From this, technical analysis represents the oldest method of investment analysis known to mankind. Its origins date back to the Japanese rice futures market in the 18th century [1]. Technical Analysis Model goes against the fulfillment of the weak form of the hypothesis of efficient market raised by Fama [2]. In effect, if all the information contained in the historical prices in well-known by the market and incorporated into the effective prices; the technical analysis would fail in its theoretical sustenance [3]
The three premises on which the technical analysis is based are:

A. Everything what can affect at the price of any asset is totally discounted and built-in in this price;
B. Prices move in tendencies;
C. History always is repeated.

The technical approach to investment is essentially a reflection of the idea that prices move in trends that are determined by the changing attitudes of investors toward a variety of economic, monetary, political, and psychological forces. The art of technical analysis for it is an art, is to identify a trend reversal at a relatively early stage and ride on that trend until the weight of the evidence shows or proves that the trend has reversed [4].

Since Charles H. Dow first introduced the Dow theory in the late 1800s, technical analysis has been extensively used among market participants such as brokers, dealers, fund managers, speculators, and individual investors in the financial industry. Technical analysis includes a variety of forecasting techniques such as chart analysis, pattern recognition analysis, seasonality and cycle analysis, and computerized technical trading systems [4].

Although all this, technical analysis has been heavily criticized over decades. One critique is that it trades when a trend is already established. By the time that a trend is signaled, it may already have taken place. Hence it is said that technical analysts are always trading too late [5].

II. BASIC ASSUMPTION ABOUT TECHNICAL ANALYSIS

We present here a brief summary of some simple patterns and the basic principles that standard references state as the justification for technical analysis [6]. The key assumptions are as follows:

A. Trends in prices tend to persist.

This is essentially a momentum concept which means, in economic terms, that the supply/demand ratio is slowly varying (despite changing prices) unless there is a significant change in fundamentals or the sources of supply or demand. Note that this assumption may violate classical equilibrium economics in that a price rise is not expected to bring an immediate decline in demand or rise in supply. Thus, the validity of this key assumption of technical analysis appears to be contingent upon introducing price derivative dependence, in addition to price dependence, upon the demand function.

B. Market action is repetitive.

This assumption maintains that various patterns appear again and again in price charts. These patterns evolve as a consequence of investors' reactions to the change in their fortunes. Thus, the recurrence of various patterns is a manifestation of the tendency for people to behave similarly (or employ analogous strategies) in similar situations.

III. CRITICISMS OF TECHNICAL ANALYSIS

Criticisms of technical analysis have included the following:

A. The complex patterns are difficult to identify in an objective manner.

B. Academic studies (e.g. [7]) have indicated that positive out-of sample results are not obtained in a straightforward manner.

C. There is a perception that pure technical analysts (who avoid valuation completely) do not produce consistently large profits.

IV. JAPANESE CANDLESTICKS

In the 1600s, the Japanese developed a method of technical analysis to analyze the price of rice contracts. This technique is called candlestick charting. Steven Nison is credited with popularizing candlestick charting and has become recognized as the leading expert on their interpretation.

Candlestick charts display the open, high, low and closing prices in a format similar to modern-day bar-chart, but in manner that extenuates the relationship between the opening and closing prices. Candlestick charts are simply a new way of looking at prices, they don't involve any calculations.

The interpretation of candlestick charts is based primarily on patterns. The most popular patterns are explained below [8].

A. Bullish patterns:

1)Long white (empty) line: it occurs when prices open near to the low and close significantly higher near the period's high.

2)Hammer: it occurs after a significant downtrend. A hammer is identified by a small real body (a small range between the open and closing prices) and a long lower shadow (the low is significantly lower than the open, high, and close). The body can be empty or filled-in.

3)*Piercing line:* the first line is a long black line and the second line is a long white line. The second lines opens lower than the first line's low, but it closes more than half way above the first line's real body.

4)*Bullish engulfing lines:* it occurs when a small bearish (filled-in) line is engulfed by a large bullish (empty) line.

5)*Morning star*: the star indicates a possible reversal and the bullish (empty) line confirms this. The star can be empty or filled-in.

6)Bullish doji star: a star indicates a reversal and a doji indicates indecision. Thus this pattern usually indicates a reversal following an indecisive period.

B. Bearish patterns:

1)Long black (filled-in) line: it occurs when prices open near the high and close significantly lower near the period's low.

2)Hanging man: occurs after a significant uptrend. It is identified by small real bodies (a small range between the open and closing prices) and a long lower shadow (the low was significantly lower than the open, high and close). The bodies can be empty or filled in.

3)*Dark cloud cover:* it is a bearish pattern, and it is more significant if the second line's body is below the center of the previous line's body.

4)*Bearish engulfing lines:* this pattern is strongly bearish if it occurs after a significant up-trend. It occurs when a small bullish (empty) line is engulfed by a large bearish (filled-in) line.

5)*Evening star:* this is a bearish pattern signifying a potential top. The "star" indicates a possible reversal and the bearish (filled-in) line confirms this. The star can be empty or filled-in.

6)*Doji star:* a star indicates a reversal and a doji indicates indecision. Thus, this pattern usually indicates a reversal following an indecisive period.

7)*Shooting star:* this pattern suggests a minor reversal when it appears after a rally. The star's body must appear near the low price and the line should have a long upper shadow.

C. Reversal patterns:

1)Long-legged doji: this line often signifies a turning point. It occurs when the open and close are the same, and the range between the high and low is relatively large.

2) *Dragon-fly doji:* this line signifies a turning point. It occurs when the open and close are the same, and the low is significantly lower than the open, high and closing prices.

3)*Gravestone doji*: this line also signifies a turning point. It occurs when the open, close and low are the same, and the high is significantly higher than the open, low and closing prices.

4)*Star:* stars indicate reversal. A star is a line with a small real body that occurs after a line with a much larger real body, where the real bodies do not overlap. The shadows may overlap.

5)Doji star: a star indicates a reversal and a doji indicates indecision. Thus, this pattern usually indicates a reversal following an indecisive period. You should wait for a confirmation before trading a doji star.

D. Neutral patterns:

1) *Spinning tops:* they occur when the distance between the high and low, and the distance between the open and close, are relatively small.

2) *Doji:* this line implies indecision. The security opened and closed at the same price. These lines can appear in several different patterns.

3) *Harami (pregnant in English):* this pattern indicates a decrease in momentum. It occurs when a line with a small body falls within the area of a larger body.

4) *Harami cross:* This pattern is similar to a harami, expect the second line is a doji (signifying indecision).

V. JAPANESE CANDLESTICK AND QATAR DSM

A. *History of Qatar Exchange*

Doha Securities Market (DSM) officially commenced operations in May 1997. Following a strategic partnership agreement between Qatar Holding and NYSE Euronext in June 2009, DSM was renamed Qatar Exchange (QE). QE is an international exchange offering great investment opportunities for all investors. QE is a well regulated, sound institution that prides itself on equal opportunities for market access.

The primary aim of QE is to support Qatar's economy by giving investors a platform through which they can trade fairly and efficiently. QE also provides the public with access to market information, ensures correct disclosure of information, and enforces securities regulations. QE is regulated by the Qatar Financial Markets Authority [9].

B. *Qatar Exchange Today*

QE currently has 42 listed companies and 11 brokerage firms. QE maintained its position as the best performing market in the GCC and Arab region for the second consecutive year. The QE Index grew by 1.12% in 2011 and was the only market in the Arab region with positive price return, underpinning the robustness of the Qatari stocks. At the world stage, Qatar ranked number 8th in terms of total return performance (including dividends) with a total return of about 5.6%.

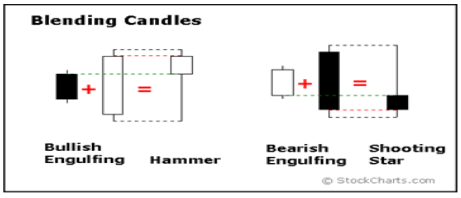
C. *Qatar Exchange Analysis*

In this section, we try to make an analysis to the Qatar Exchange by using the Japanese candlesticks during the period of 2004 until august 2014.

1) Weekly candlesticks analysis:

To make the analysis, we need to explain the blending of candles and the following example does that:

Fig. (1): Blending candles



The candle that represents the week should be:
The opening price: is the opening price of the first day in the week (Sunday at 9:00 am)
The closing price: is the closing price of the last day in the week (Thursday at 1:15pm)
The shadows of the candle: the upper shadow is the high price during the week and the lower shadow is the low price in the week.

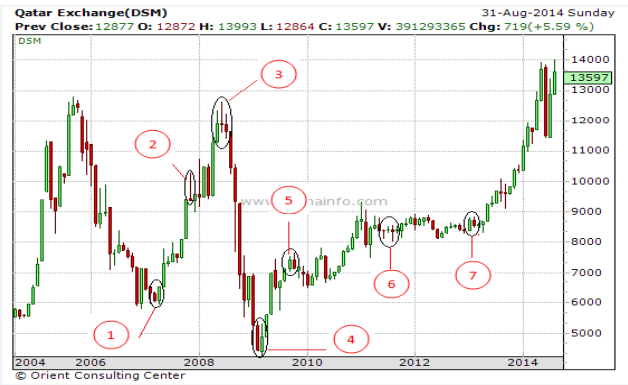
Fig. (2): weekly candlestick chart

From the weekly candlestick chart, it seems to be hard to make any analysis because of the long period but the only thing that can be watched is: the red color represents a downtrend and the green color represents an uptrend. May be by using a long period for any candle, it can see other results.

2) Monthly candlestick analysis:

In this analysis, we notify that the candle which represents the month is the result of blending all the daily candles of the month which will be as:
The opening price: is the opening price of the first day in the month.
The closing price: is the closing price of the last day in the month.
The shadows of the candle: the upper shadow is the highest price during the month, and the lower shadow is the lowest price during this month.

Fig. (3): Monthly candlesticks chart



From the candle sharp above, we see that the long green (white) candles refer to a bullish trend, while the long red (empty) candles refer to a bearish trend.

There is a bullish engulfing line in the first bottom (1) which indicates a reversal uptrend, in addition to a piercing line in the second bottom (4) which indicates also a reversal uptrend.

Despite there are more than a shooting star (2) in the sharp, it does not identify any thing.

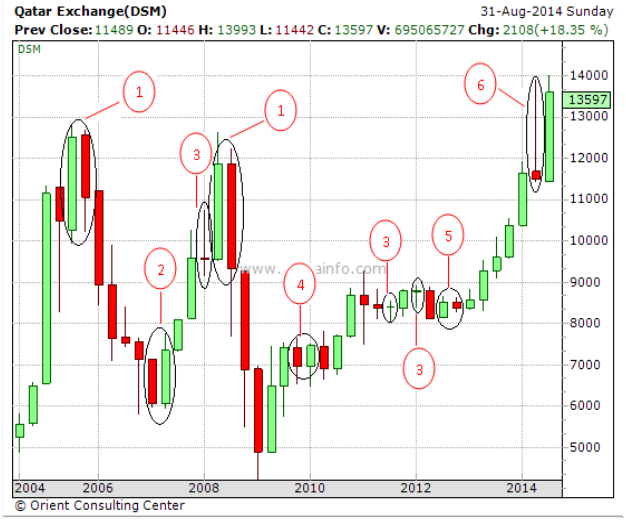
The doji in the second top (3) indicates a reversal and the trend in going down.

In the last part of the sharp, we see that there is a long uptrend continued more than 5 years, it is started almost in 2009 until now, in this long period there are some periods of stability which are illustrated by some neutral candles like the spinning tops (5), some doji (6) and harami (7).

3) Quarterly candlestick analysis:

In the same way, the candle that represents any quarter is the result of blending the candles of three successive months and the following candle chart display this:

Fig. (4): Quarterly candlestick chart



From the candle chart above the most patterns that represents the trends are as follow:

Dark cloud cover (1) in the two tops represents a bearish trend starting from this point.
Bullish engulfing line (2) in the first bottom represents an up-trend.
The spinning tops (4) represent a neutral pattern, in addition to the doji (3) and harami (5).
The shooting star (6) in the chart does not play its role as a bearish pattern.

4) Semi-annual candlesticks analysis:

The candle that represents any 6 months is the result of blending the candles of six successive months (from January 1st until June 30th and from July 1st until December 31st), the following candle chart display this:

Fig. (5): Semi-annual candlestick chart

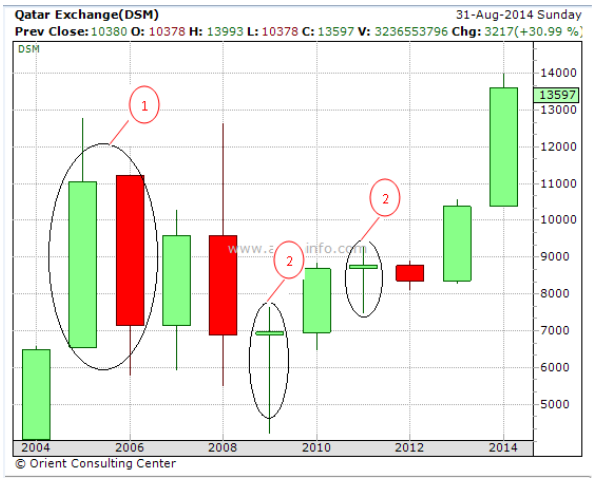
In the candle chart above, we do not find much candle patterns as before, may be this due to the long period that represented in a one candle (6 months).

The bearish engulfing line (1) representing a bearish trend, while the spinning tops (2) representing a neutral pattern which is a period of stability.

5) Yearly candlestick analysis:

The candle that represents a year is the blinding of all the candles of this year. According to the period of study (eleven years) we have eleven candles which make it more difficult to analyze the patterns than other periods. The yearly candlestick chart is displayed below:

Fig (6): annual candlestick chart



In general, there is an uptrend in the first period from 2004 until 2005 then the trend is going down displaying by a dark cloud cover (1). The year 2009 is represented by a candle which is near to a doji (2) and is playing as a reversal where the trend is going up in 2010 then there is another doji in 2011 playing as a reversal pattern and the red candle of 2012 is the proof. The trend is going up from 2013 until now without any candle signal.

VI. CONCLUSION

The Japanese chart was originated in the rice market centuries ago. "If all other people are bullish, be foolish and sell rice'' is one of the pieces of advice contained in some Japanese articles wrote during 1755-1760.

The traditional Japanese charts (candlesticks) are very useful in showing the strength and weakness of the market, as this can be seen from the color and size of the candle. In Qatar Exchange, we conclude that the candlesticks can give suitable analysis about the current situation that analyzed and can forecast the future of market. The long period of study and the short period for candles chart give better results (in the monthly analysis there are many signals comparing with the yearly analysis).

Despite these optimistic results about candlesticks analysis, candlestick should not be used as a separate technique, as it is only a secondary tool that should be used in conjunction with the basic technical analysis tools.

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