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TRADING STRATEGIES USING STOCHASTIC
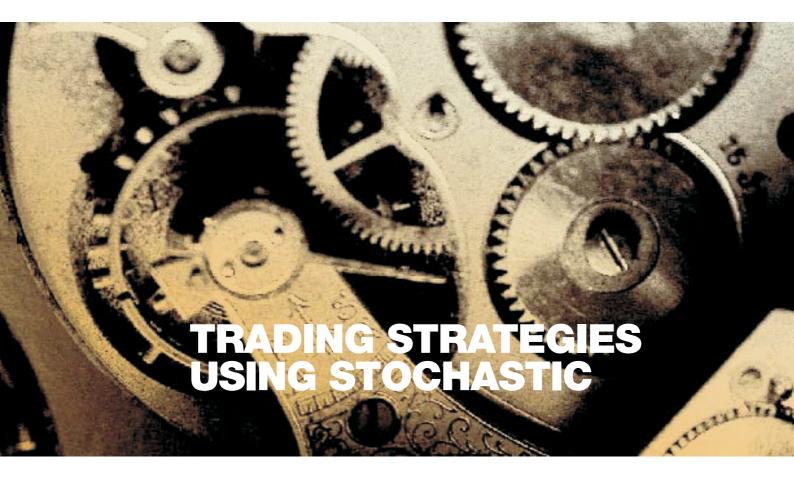
In the aftermath of the global market correction following the big drop in the Chinese stock market indices in Feb 2007, investors have returned to the markets with a vengeance pushing the indices to scale new heights almost daily. However with recent moves by the Chinese authorities to cool the bullishness through measures such as the increase in stamp duties, the Chinese stock markets have again dropped significantly in the first few days of June 2007. This example of wild swings in the market sentiment can cause serious damage to the retail investor's pocket, especially those uneducated in the forces at play in the stock market. Consequently it is vital that investors and traders are well-equipped in technical analysis tools to time the market effectively. This article will look at one of the tools in Technical Analysis indicators called Stochastic, a momentum indicator that shows clear bullish and bearish signals.

Stochastic is a momentum oscillator developed by George C.Lane in the late 1950s. Lane noticed that in an up trending stock, prices will usually make higher highs and the daily closing price will tend to accumulate near the extreme highs of the "look back" periods. Similarly, a down trending stock demonstrated the same behavior of which the daily closing price tends to accumulate near the extreme lows of the past periods. Thus Lane used a mathematical formula to calculate the Stochastic whose value decreases toward 0 in a down market and increases toward 100 in an up market. Furthermore as with most oscillators that oscillate in a fixed range, an overbought and oversold condition can be specified. Based on his trading experience, Lane defined the overbought and oversold region for the Stochastic value to be above 80 and below 20 respectively. He deemed that a Stochastic value above 80 or below 20 may signal that a price trend reversal may be imminent.

Stochastic is made up of 2 main components, the %K line and the %D line. The %K line whose value ranges from 0 to 100 is calculated based on the high of recent closing price with respect to the

highest and lowest price attained during the specified period. The value of %D is derived from taking the moving average of %K (where the period of the moving average is commonly set at 3 days). This is also known as the fast Stochastic, %K (fast) and %D (fast). However, the fast Stochastic's reaction to the price action causes many frequent signals which then lead to the creation of many false buy/sell signals. Hence, in order to render the signals more efficient, the slow Stochastic was developed. The %K (slow) line is the same as the %D (fast) line whilst the %D (slow) line is the 3 days moving average of %K (slow) line. This is termed as the Full Stochastic Oscillator (Full STO) which consist of the %D (fast), %D (slow) and %K (full) and its uniqueness is the usage of "smoothing factor" for the initial %K line to plot the %K (full) line. While it is important to know how an indicator is built, this article will focus on the different ways

that Stochastic can be used to find meaningful signals.

The most basic usage of Stochastic is in the Crossovers theories. A buy/sell signal is generated when %K line crosses up/down %D line respectively. However the crossover signals proved to be quite unreliable as their occurrences are quite frequent. A more reliable usage of Stochastic is in the divergence analysis. Notice that when a price is making a higher high, the indicator should also be making a higher high while a lower low in price should be accompanied by a lower low in the indicator. However in scenarios where the price makes a higher high and the indicator fails to make a higher high or when the price makes a lower low and the indicator fails to make a lower low, a divergence is said to have taken place, the former being termed a bearish divergence and the latter a bullish divergence.

Figure 1:
Bullish/Bearish Divergences in Oversold/ Overbought region

Figure 2:
Usage of Stochastic with the GMMA indicator

Figure 3: Use of Stochastic with Trendline Analysis

During the period of late September 2006 to mid October 2006, Noble's stock price was in a down trend. However, Stochastic formed a bullish divergence and near mid October 2006, a short-term trend reversal took place.

On the other hand, during the period of March 2007 to May 2007, the price engaged in a bullish run but Stochastic showed sign of weakness by failing to make higher highs with higher highs in price. A bearish divergence occurred and soon afterward a downtrend followed.

We can enhance the quality of the Stochastic divergence signal with another indicator to increase the probability of making a winning trade. A popular indicator that can be used together with the Stochastic bullish/bearish divergence is the Guppy Multiple Moving Average (GMMA) which was developed by Daryl Guppy. GMMA is a powerful indicator used to understand the nature and character of the trend and it is made up of two sets of exponential moving average (EMA) lines - the shorter-term EMA and the longer-term EMA. The shorter-term EMA are made up of 3,5,8,10,12,15 days EMA lines and the longer-term EMA are made up of 30,35,40,45,50,60 days EMA lines. Let us re-visit the earlier chart (Figure 1) which illustrated the bullish divergence in October 2006. An analysis of the GMMA in Figure 2 shows that a crossing up of the shorter-term EMA lines over the longer-term EMA took place around the 16th October 2006 thereby confirming the bullish signal generated by the Stochastic bullish divergence.

Instead of using another indicator to confirm the Stochastic signal, we may use trendline analysis to do that. Figure 3 illustrates the usage of trendline analysis to confirm the bearish divergence in Stochastic. The blue uptrend line supported the increase in price from $1.27 to $1.80 in the period of March 2007 to early May 2007. However the price broke down the uptrend line in late April 2007 and failed in its attempt to move back up on 7th May 2007. Coupled with the bearish divergence in Stochastic, this gave a strong indication of an impending trend reversal.

This article has highlighted the importance of having a clear timing strategy when trading the stock market. A powerful indicator in technical analysis is Stochastic, a momentum indicator best used to identify bullish and bearish divergences which are signals that warn of an impending trend reversal. To increase the reliability of divergence signals, a different indicator or trendline analysis may be used. ∎