

DUBY1600 WAVE – NEW METHOD OF SECURITIES MARKET FORECASTING

Nguyen Trung Thanh

No. 17/3C, Nguyen Trai Street, Ha Dong District, Hanoi City, Vietnam.

ORCID: 0000-0002-9765-2552

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ABSTRACT

In the securities market, there are many different methods to forecast the movement of stock prices. From fundamental analysis methods to technical analysis methods, each method has its own advantages and disadvantages. In the framework of this article, I propose a new method of technical analysis, mainly based on the analysis of stock price charts. First, I come up with a new concept, called the “Sausage” pattern, the developed into new technical patterns.

Keywords: Securities market; Technical analysis; Bollinger bands; “Sausage” Pattern; DUBY1600 wave.

I- The concept of “Sausage” pattern

Bollinger bands on stock price charts were developed by John Bollinger in the 1980s of the last century. This is a technical analysis tool commonly used by investors. Bollinger bands consisting of upper and lower bands are often used in conjunction with the Exponential moving average EMA20. These bands show how active the securities market is in general or each type of stock is in particular.

When the market fluctuates strongly up or down, the Bollinger bands expand to the two sides, and when the market is stable, these bands narrow the gap and return to an almost tightening state. Bollinger bands can be used with different parameters depending on habits of the user. Some people prefer to use Bollinger bands for 14 trading sessions or 25 trading sessions, but most commonly Bollinger bands are used with 20 trading sessions and a standard deviation of 2, abbreviated as BB (20,2).

In this article, I will use Bollinger bands with 20 trading sessions and a standard deviation of 2.

Usually, a stock, before a strong increasing in price, always needs a period of accumulation. In this accumulation phase, stock price is traded stably in a narrow range, increasing and decreasing not much, and remaining for a relatively long time. Then the Bollinger bands get close together and move almost parallel to each other. When the stock starts to increasing in price, the upper band will be pushed upwards and the Bollinger band expansion will begin. The time when the stock prices reach new peak is also the time when the Bollinger bands open widest. After reaching a new peak, the stock price will stop increasing and move to accumulate around this new price level. Then the Bollinger bands begin the process of narrowing the gap until they return to a tightening state. If, after the accumulation period, the stock price begins to decrease, the lower band will be pushed down and the process of Bollinger band expansion will also begin. The time when the stock price reaches a new bottom is also the time when the Bollinger bands open widest.

After creating a new bottom, the stock price will stop falling and move to accumulate around this new price level. Then the Bollinger bands begin the process of narrowing the gap until they return to a tightening state.

Thus, the cycle of stock price going up and down after the accumulation phase always begins with the opening of Bollinger bands and ends with the narrowing of these bands.

The fact that the Bollinger bands, which are from a narrow state to a sudden opening and then return to a narrow state, formed a technical pattern and are called "Sausage". If the Bollinger bands tighten at a price level higher than the opening price, the Sausage pattern is called a "bullish Sausage". If the Bollinger bands tighten at a new price level lower than the opening price, the Sausage pattern is called a "bearish Sausage".

The following is an example of a Bullish Sausage pattern and a Bearish Sausage pattern.

A . "Bullish Sausage" pattern:

During March, 2021, VND's stock price was traded stably in the range of 17,000 VND to 19,000 VND/share. During this period of steady trading, the Bollinger bands tighten and get close together. From March 30 th , 2021 to April 12 th , 2021, VND's stock price increased by about 28% from 18,300 VND to 23,400 VND/share. The increase in VND's stock price pushed the upper Bollinger band upward and made the Bollinger bands continuously expand to the two sides in these days. From April 12 th , 2021 to May 6 th , 2021, VND's stock price stopped increasing and was traded around the new price level from 22,000 VND to 24,000 VND/share. The Bollinger bands gradually narrowed the gap until they get close together.

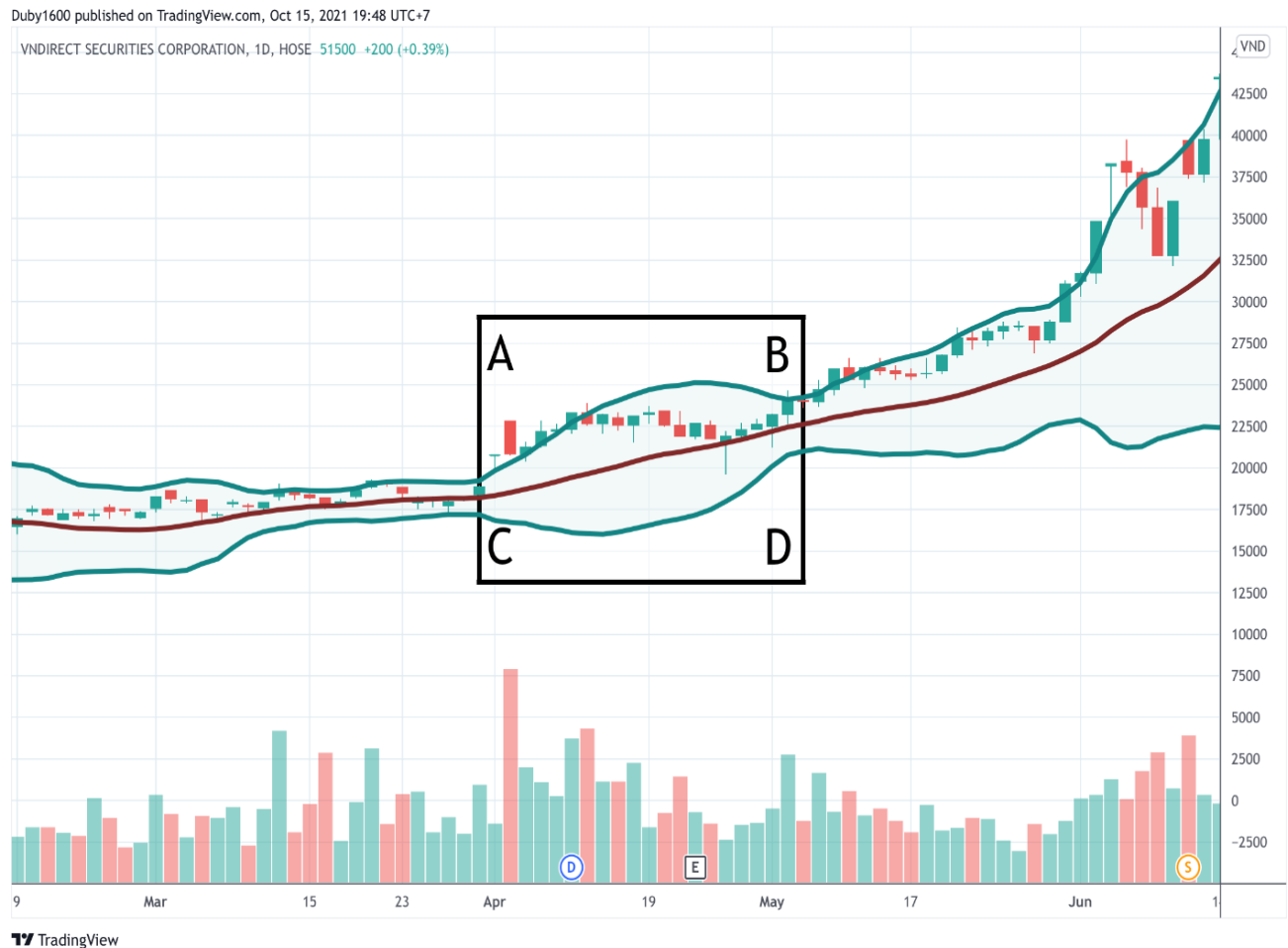


Figure 1: Stock price chart of VNDIRECT Securities Corporation(Ticker symbol: VND) for the period from March, 2021 to June, 2021. Daily trading timeframe.

Thus, the Bollinger bands on VND’s stock price chart, which is the part located in the ABCD rectangle on the chart in Figure 1, from March 30 th , 2021 to May 6 th ,2021, first widen when VND’s stock price rose and then squeezed when VND’s stock price stopped rising, forming a Sausage technical pattern. The Bollinger bands squeezed at a new price level of 24,000 VND/share, which was higher than the opening price of 18,300 VND/share, so this Sausage pattern is a bullish Sausage.

In fact, a bullish Sausage pattern does not always begin with a stock rally. Sometimes a slight pullback after the accumulation cycle causes the lower Bollinger band to open downwards but then the stock price reverses, increases sharply and crosses above the upper Bollinger band causing the upper band to open sharply upwards. At the end of the rally, the Bollinger bands still

squeeze at a price level higher than that before opening, and the newly created Sausage pattern is still a bullish Sausage pattern.

Also, in the bullish Sausage pattern, the Exponential moving average EMA20 is always pointing upwards. This is also a recognizable feature of the bullish Sausage pattern.

B. “Bearish Sausage” pattern:

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Figure 2: Stock price chart of Japan Vietnam Medical Instrument Joint Stock Company (ticker symbol: JVC) for the period from May, 2019 to September, 2019. Daily trading timeframe.

For a long time from May 22 nd , 2019 to June 20 th , 2019, JVC's stock price was traded stably in the range of 3,050 VND to 3,120 VND/share. During this period of steady trading, the Bollinger bands tighten and get close together. From June 21 st , 2019 to July 1 st , 2019, JVC's stock price decreased by about 8% from 3,050 VND to 2,800 VND/share. The decrease in JVC's stock price pushed the lower Bollinger band downward and made the Bollinger bands continuously expand to the two sides in these days. From July 2 nd , 2019 to July 25 th , 2019, JVC's stock price stopped decreasing and was traded around the new price level from 2,800 VND to 2,950 VND/share. The Bollinger bands gradually narrowed the gap until they get close together.

Thus, the Bollinger bands on JVC's stock price chart, which is the part located in the ABCD rectangle on the chart in Figure 2, from June 21 st , 2019 to July 25 th ,2019, first widen when JVC's stock price fell and then tightened when JVC's stock price stopped falling, forming a Sausage technical pattern. The Bollinger bands tightened at a new price level of 2,830 VND/share, which was lower than the opening price of 3,050 VND/share, so this Sausage pattern is a bearish Sausage.

Just like the usual case with the bullish Sausage pattern, the bearish Sausage pattern sometimes begins with a slight rally after an accumulation cycle causing the upper Bollinger bands to open upwards, but then the stock price reverses, decreases sharply and plunges below the lower Bollinger band, causing this band to open and fall downwards. At the end of the drop, the Bollinger bands still tighten at a price level lower than that before opening, and the newly created Sausage pattern is still a bearish Sausage pattern.

In this bearish Sausage pattern, the Exponential moving average EMA20 is always pointing downwards. This is also a recognizable feature of the bearish Sausage pattern.

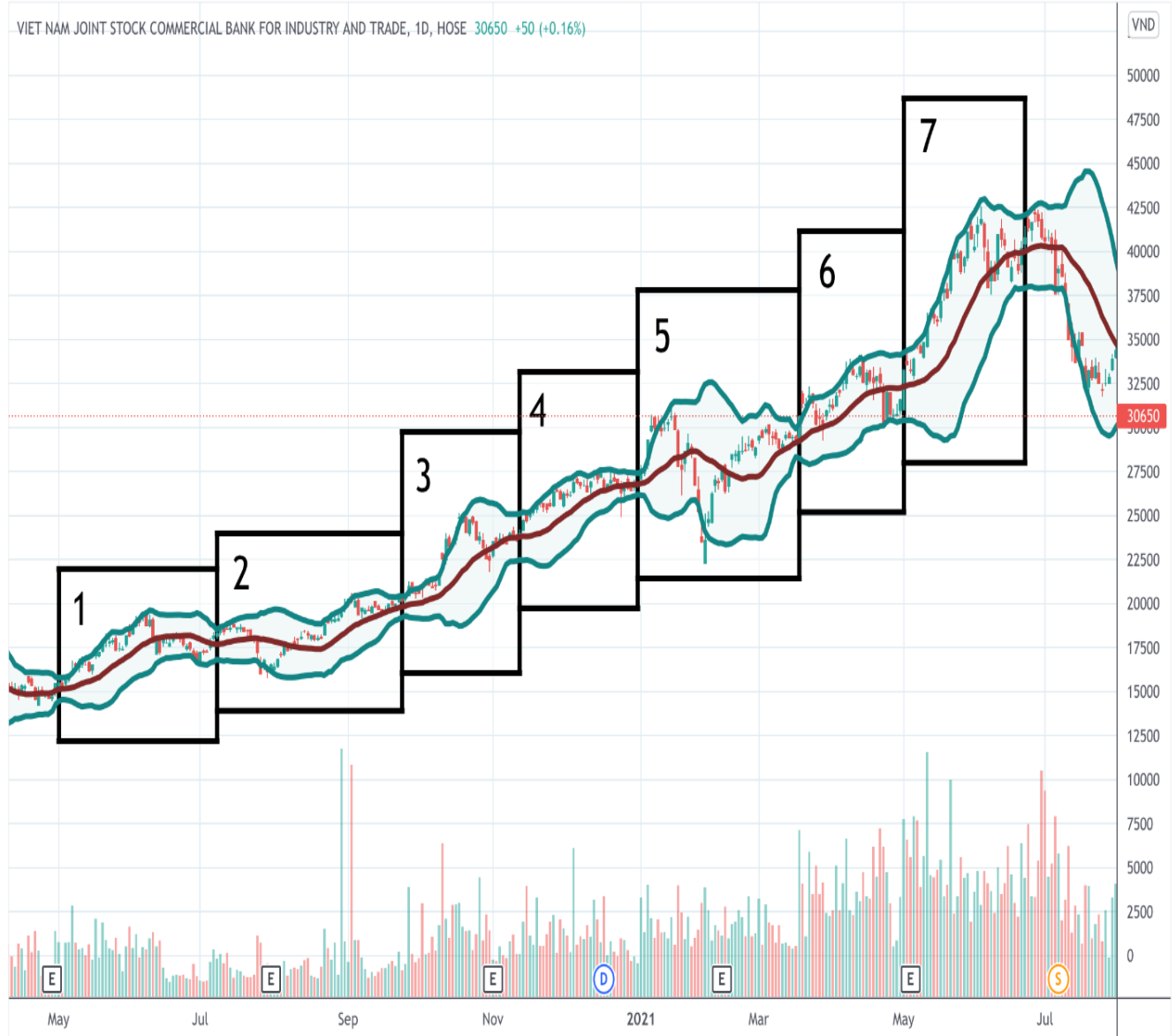
The above two examples of the bullish Sausage pattern and the bearing Sausage pattern are two descriptive examples of typical Sausage patterns. In fact, the Sausage pattern always come in different shapes and sizes.

II- Continuity of Sausage patterns

Each stock rally or drop to form a Sausage pattern lasts for a certain period and the degree of stock rally or drop is also different. If the period of stock rally or drop is longer, the created Sausage pattern will also be longer. Then the number of candles inside the Sausage pattern also increases accordingly. The stronger degree of stock rally or drop is, the wider the Bollinger bands open. Therefore, a bullish Sausage pattern will show how long or short the stock's bull cycle is and how strong or weak the rally is. A bearish Sausage pattern will also show how long or short the stock's bear cycle is and how strong or weak the drop is.

A. Bullish sausage pattern chain:

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Figure 3: Stock price chart of Vietnam Joint Stock Commercial Bank for Industry and Trade(ticker symbol: CTG) for the period from May, 2020 to June, 2021. Daily trading timeframe.

From the beginning of May, 2020 to the end of June, 2021, CTG's stock price had a bull cycle of more than 180%, from 15,000 VND to 42,000 VND/share. This strong bull cycle in CTG's stock was broken down into seven consecutive rallies and created seven consecutive bullish Sausage patterns. The first rally lasted from May 4th, 2020 to July 8th, 2020 and created the Bullish Sausage pattern No. 1. The second rally lasted from July 9th, 2020 to September 24th, 2020 and created the Bullish Sausage pattern No. 2. The third rally lasted from September 25th, 2020 to November 12th, 2020 and created the Bullish Sausage pattern No. 3. The fourth rally lasted from November 13th, 2020 to December 31st, 2020 and created the Bullish Sausage pattern No. 4. The fifth rally lasted from January 4th, 2021 to March 16th, 2021 and created the Bullish Sausage pattern No. 5. The sixth rally lasted from March 17th, 2021 to April 29th, 2021 and created the Bullish Sausage pattern No. 6. The seventh rally lasted from May 4th, 2021 to June 23rd, 2021 and created the Bullish Sausage pattern No. 7.

Thus, the CTG's stock bull cycle from May, 2020 to June, 2021 created seven consecutive bullish Sausage patterns numbered 1 to 7 on the chart in Figure 3. These bullish Sausage patterns have different lengths because they last for different periods of time. The gaps between Bollinger bands are also different because the degrees of rally of each period are also different.

B. Bearish sausage pattern chain:

From the beginning of August, 2019 to May, 2020, BVH's stock price had a bear cycle of more than 47%, from 85,000 VND to 45,000 VND/share. This strong bear cycle in BVH's stock was broken down into five consecutive drops and created seven consecutive bearish Sausage patterns. The first drop lasted from August 1st, 2019 to September 3rd, 2019 and created the Bearish Sausage pattern No. 1. The second drop lasted from September 4th, 2019 to October 31st, 2019 and created the Bearish Sausage pattern No. 2. The third drop lasted from November 1st, 2019 to January 21st, 2020 and created the Bearish Sausage pattern No. 3. The fourth drop lasted from January 22nd, 2020 to March 15th, 2020 and created the Bearish Sausage pattern No. 4. The fifth drop lasted from March 6th, 2020 to May 6th, 2020 and created the Bearish Sausage pattern No. 5.

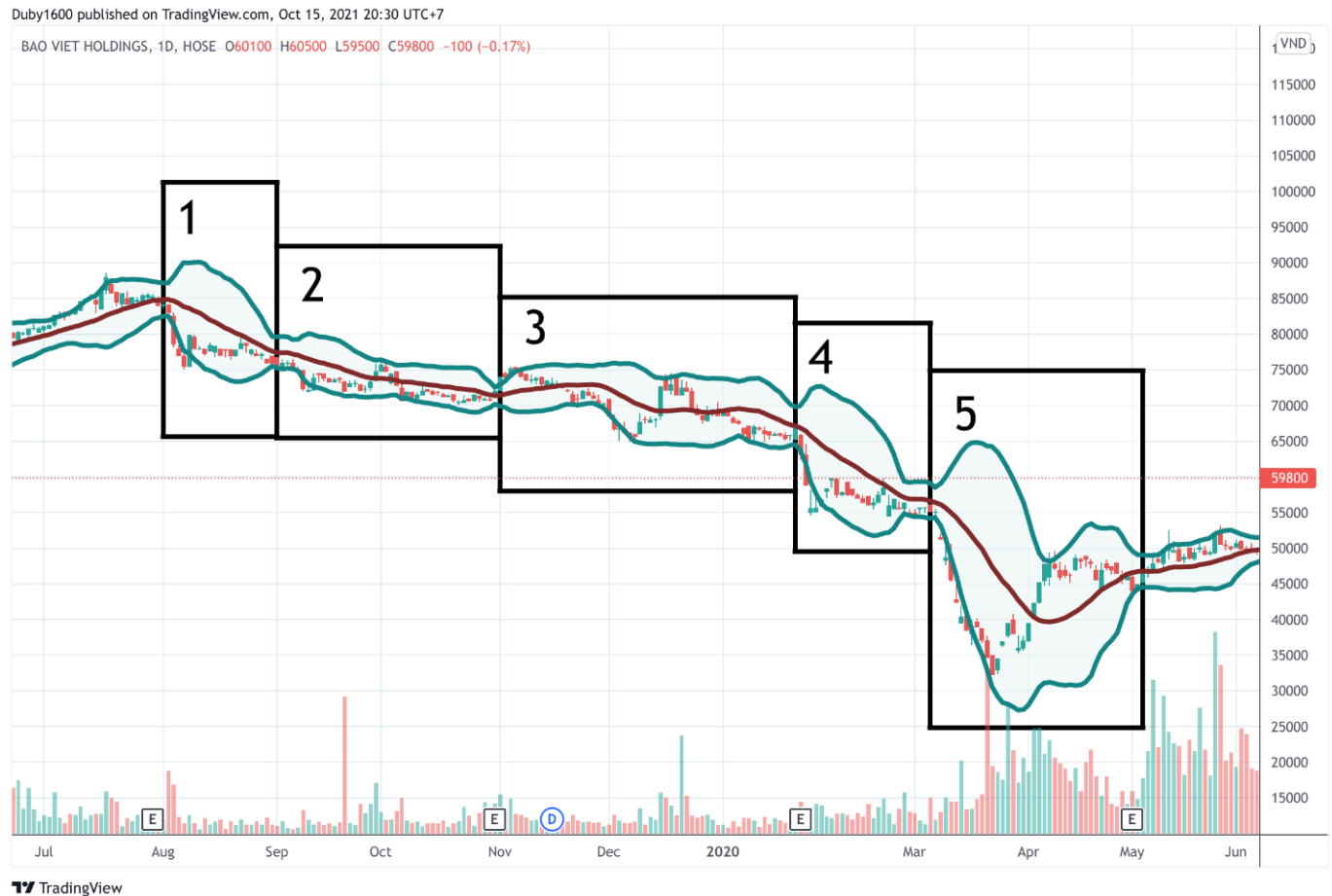


Figure 4: Stock price chart of Bao Viet Holdings(ticker symbol: BVH) for the period from July, 2019 to June, 2020. Daily trading timeframe.

Thus, the BVH’s stock bear cycle from August, 2019 to May, 2020 created five consecutive bearish Sausage patterns numbered 1 to 5 on the chart in Figure 4.

These bearish Sausage patterns have different lengths because they last for different periods of time. The gaps between Bollinger bands are also different because the degrees of rally of each period are also different.

In short, when the stock price enters a strong bull or bear cycle, it will create many consecutive bullish Sausage patterns or bearish Sausage patterns. In other words, each Sausage pattern is a continuation technical pattern. It means that when the stock price chart appears a bullish Sausage pattern, the uptrend of stock price will continue. This uptrend will open the next bullish Sausage pattern. And when the stock price chart appears a bearish Sausage pattern, the downtrend of stock price will continue. This downtrend will open the next bearish Sausage pattern Just like

other basic technical patterns such as double top, double bottom, head and shoulders, cup and handle, ... patterns, Sausage technical patterns can not only appear on securities trading chart, but also appear on trading charts of basic commodities such as gold, silver, oil, ... and on forex trading charts. Sausage technical patterns can appear on trading charts with different timeframes. From charts with small timeframes such as one minute or five minutes ... to charts with larger timeframes such as weekly, monthly or quarterly, ... trading charts.

III-Classifying the waves

A Sausage technical pattern is formed by opening the Bollinger bands and then narrowing them. These Sausage patterns will last for a certain amount of time. On a stock price chart with a daily trading timeframe, the period from when the Bollinger bands open to when they get close will last from 20 to 30 trading sessions. In some special cases, this period can be as long as 40 trading sessions or more. A Sausage pattern lasting for a period of 20 to 30 trading sessions is a small Sausage pattern, and a Sausage pattern lasting for a period of greater than 30 trading sessions is a large Sausage pattern.

When a stock price rises and begins to open up a bullish Sausage pattern on the daily chart, this stock's bull cycle can last for 20 to 30 days or even more. If the stock price rises and starts to open a bullish Sausage pattern on the weekly chart, the stock's bull cycle can last for 20 or 30 weeks or more ... From here, we can classify stock's bull cycles and classify stock rally waves based on the following Sausage technical patterns.

A. For rallied stock

A1. If a stock price rises and begins to open up a bullish Sausage pattern on the daily chart, such stock is entering a short-term bull cycle. This bull cycle can last for dozens of days in a row and form a short-term stock rally wave. After reaching a new peak on the daily chart, the stock price will decline and form a short-term corrective wave.

A2. If a stock price rises and begins to open up a bullish Sausage pattern on the weekly chart, such stock is entering a medium-term bull cycle. This bull cycle can last for dozens of weeks in a row and form a medium-term stock rally wave. After reaching a new peak on the weekly chart, the stock price will decline and form a medium-term corrective wave.

A3. If a stock price rises and begins to open up a bullish Sausage pattern on the monthly chart, such stock is entering a long-term bull cycle. This bull cycle can last from year to year and form a long-term stock rally wave. After reaching a new peak on the monthly chart, the stock price will decline and form a long-term corrective wave.

A4. If a stock price rises and begins to open up a bullish Sausage pattern on the quarterly chart, such stock is entering a super long-term bull cycle. This bull cycle can last for decades and form super long-term stock rally wave. After reaching a new peak on the quarterly chart, the stock price will decline and form a super long-term corrective wave.

B. For dropped stock

B1. If a stock price falls and begins to open up a bearish Sausage pattern on the daily chart, such stock is entering a short-term bear cycle. This bear cycle can last for dozens of days in a row and form a short-term stock drop wave. After reaching a new bottom on the daily chart, the stock price will slightly increase and form a short-term retracement wave.

B2. If a stock price falls and begins to open up a bearish Sausage pattern on the weekly chart, such stock is entering a medium-term bear cycle. This bear cycle can last for dozens of weeks in a row and form a medium-term stock drop wave. After reaching a new bottom on the weekly chart, the stock price will slightly increase and form a medium-term retracement wave.

B3. If a stock price falls and begins to open up a bearish Sausage pattern on the monthly chart, such stock is entering a long-term bear cycle. This bear cycle can last from year to year and form a long-term stock drop wave. After reaching a new bottom on the monthly chart, the stock price will slightly increase and form a long-term retracement wave.

B4. If a stock price falls and begins to open up a bearish Sausage pattern on the quarterly chart, such stock is entering a super long-term bear cycle. This bear cycle can last for decades and form a super long-term stock drop wave. After reaching a new bottom on the quarterly chart, the stock price will slightly increase and form a super long-term retracement wave.

IV- "Bottom Sausage" technical pattern

Bottom Sausage technical pattern is a bullish reversal technical pattern, consisting of a small bearish Sausage pattern. When this bearish Sausage pattern ends, i. e. when the Bollinger bands tighten, the stock price will rise and begin to open up a bullish Sausage pattern.

Bottom Sausage technical pattern is usually formed after a series of bearish Sausage patterns or after a large bearish Sausage pattern.

The stock price, when falling and forming a Bottom Sausage technical pattern on a daily chart, represents a short-term bottom. The stock price, when falling and forming a Bottom Sausage technical pattern on weekly chart, represents a medium-term bottom. The stock price, when falling and forming a Bottom Sausage technical pattern on monthly chart, represents a long-term

bottom. The stock price, when falling and forming a Bottom Sausage technical pattern on quarterly chart, represents a super long-term bottom.

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Figure 5: Stock price chart of Petro Vietnam Camau Fertilizer Joint Stock Company (Ticker symbol: DCM) for the period from November 2019, to April 2020. Daily trading timeframe.

For a long time from May, 2017 to early March, 2020, DCM's stock price continuously decreased and formed many different bearish Sausage patterns. From March 9th, 2020 to March 13th, 2020, DCM's stock price decreased by about 13%, from 6,100 VND to 5,300 VND/share and started to open a new bearish Sausage pattern. This new bearish Sausage pattern is denoted as the Bearish Sausage pattern No. 1 on the chart in Figure 5. The Bearish Sausage pattern No. 1 lasted from March 9th, 2020 to April 7th, 2020, which lasted for 21 trading sessions, then ended and the Bollinger bands tightened. On April 8th, 2020, DCM's stock price increased sharply and started to open a new bullish Sausage pattern.

Thus, the Bearish Sausage pattern No. 1 on the chart in Figure 5 is a small bearish Sausage pattern and is made up after a series of different bearish Sausage patterns. As the Bollinger bands of this Sausage pattern tightened, DCM's stock price started to rise and opened a new bullish Sausage pattern. The Bearish Sausage pattern No. 1 on the chart in Figure 5 is the Bottom Sausage technical pattern. This Bottom Sausage technical pattern is formed on the daily chart, so it is a short-term Bottom Sausage technical pattern.

After forming a short-term Bottom Sausage technical pattern, DCM's stock price continuously increased until the end of March, 2022. The increase has been about 700% from the price level of 5,850 VND to the price level of 46,500 VND/share.

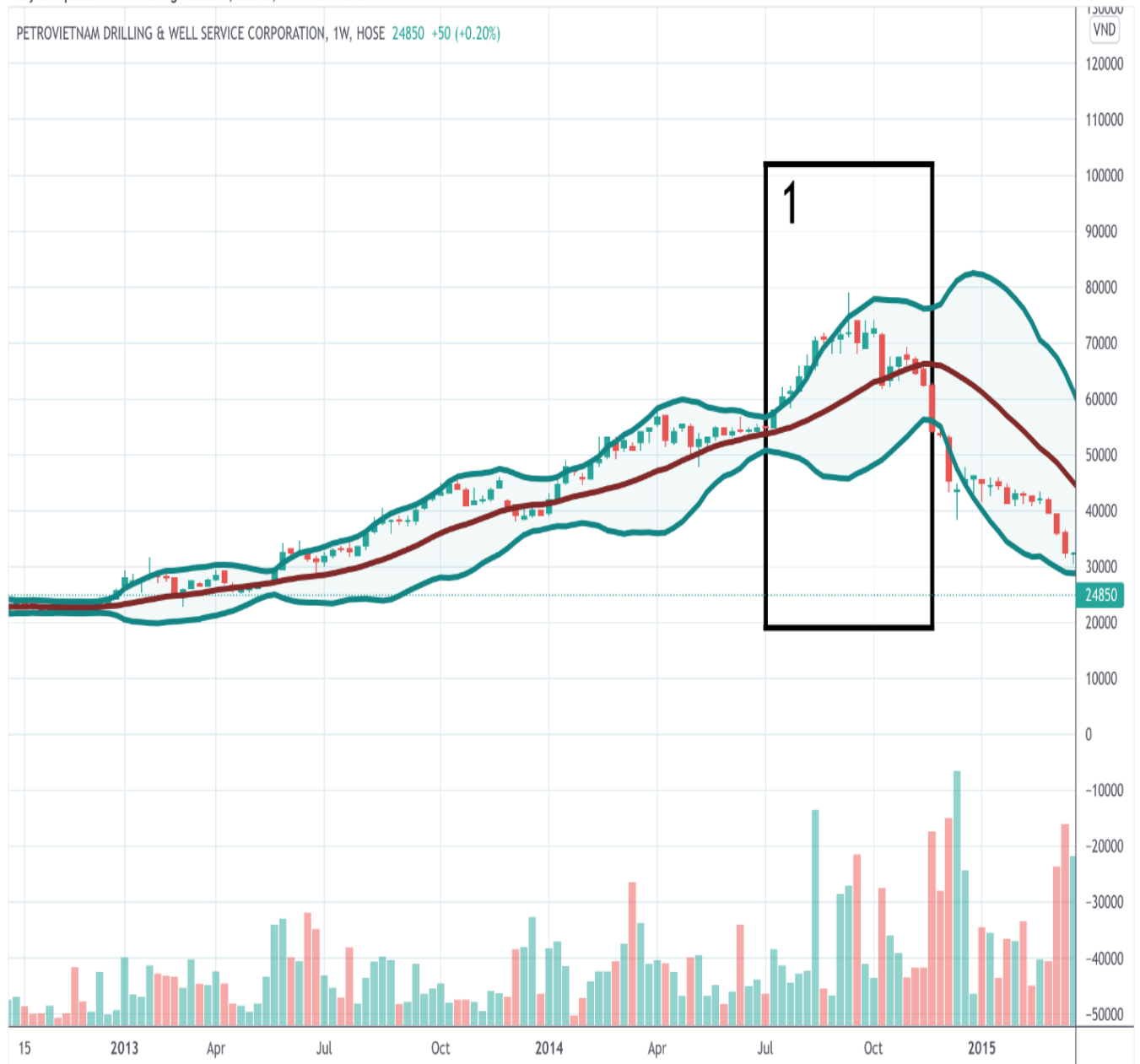
V- "Top Sausage" technical pattern

Top Sausage technical pattern is a bearish reversal technical pattern, consisting of a small bullish Sausage pattern. When this bullish Sausage pattern ends, i. e. when the Bollinger Bands tighten, the stock price falls and begins to open up a bearish Sausage pattern.

The Top Sausage technical pattern is usually formed after a series of bullish Sausage patterns or after a big bullish Sausage pattern.

The stock price, when rising and forming a Top Sausage technical pattern on a daily trading chart, represents a short-term top. The stock price, when rising and forming a Top Sausage technical pattern on a weekly trading chart, represents a medium-term top. The stock price, when rising and forming a Top Sausage technical pattern on a monthly trading chart, represents a long-term top. The stock price, when rising and forming a Top Sausage technical pattern on a quarterly trading chart, represents a super long-term top.

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Figure 6: Stock price chart of Petro Vietnam Drilling & Well Service Corporation (ticker symbol: PVD) for the period from January, 2013 to January, 2016. Weekly trading timeframe.

From the beginning of January, 2013 to the end of June, 2014, on the PVD stock price chart with the weekly trading timeframe, PVD's stock price continuously increased and formed different bullish Sausage patterns. From mid-July, 2014 to mid-September 2014, PVD's stock price increased by about 30% from 5,500 VND to 7,200 VND/share and started to open a new bullish Sausage pattern. This new bullish Sausage pattern is denoted as the Bullish Sausage Pattern No. 1 on the chart in Figure 6. The Bullish Sausage Pattern No. 1 lasted from mid-July, 2014 to the end of November, 2014, and the Bollinger bands began to tighten. In total, the Bullish Sausage Pattern No. 1 lasted 20 weeks. At the end of November, 2014, PVD stock price started to decline and opened a new bearish Sausage pattern.

Thus, the Bullish Sausage Pattern No. 1 on the chart in Figure 6 is a small bullish Sausage pattern and is formed after a series of different bullish Sausage patterns.

As the Bollinger bands of this Sausage pattern tightened, PVD's stock price fell and began to open up a new bearish Sausage pattern. The Bullish Sausage Pattern No. 1 on the chart in Figure 6 is the Top Sausage technical pattern. This Top Sausage technical pattern is formed on the weekly trading chart, so it is a medium-term Top Sausage technical pattern. After forming the medium-term Top Sausage technical pattern, PVD's stock price continuously decreased from the end of November, 2014 to October, 2017. The decrease is more than 60%, from the price of 54,100 VND to 20,300 VND/share.

VI- "Ruby" technical pattern

Ruby technical pattern is a continuation technical pattern, consisting of a small bullish Sausage pattern. When this technical pattern ends, i. e. when the Bollinger bands get close, the stock price will rise sharply. The Ruby technical pattern usually forms at the end of a long period of accumulation and often heralds a strong bull cycle.

Before forming the Ruby technical pattern, VOS's stock price had a very long period of stable trading in the range of 1,300 VND to 1,500 VND/share. From November 27 th , 2020 to December 7 th , 2020, VOS stock price increased by nearly 50% to 2,300 VND/share. The sharp increase in VOS's stock price opened a bullish Sausage pattern. This new bullish Sausage pattern is denoted as the Bullish Sausage pattern No. 1 on the chart in Figure 7. The Bullish Sausage pattern No. 1 ended after lasting until January 4 th , 2021, and the Bollinger bands started to tighten. After the end of the Bullish Sausage pattern No. 1, VOS's stock price increased sharply again and began to open a new bullish Sausage pattern.

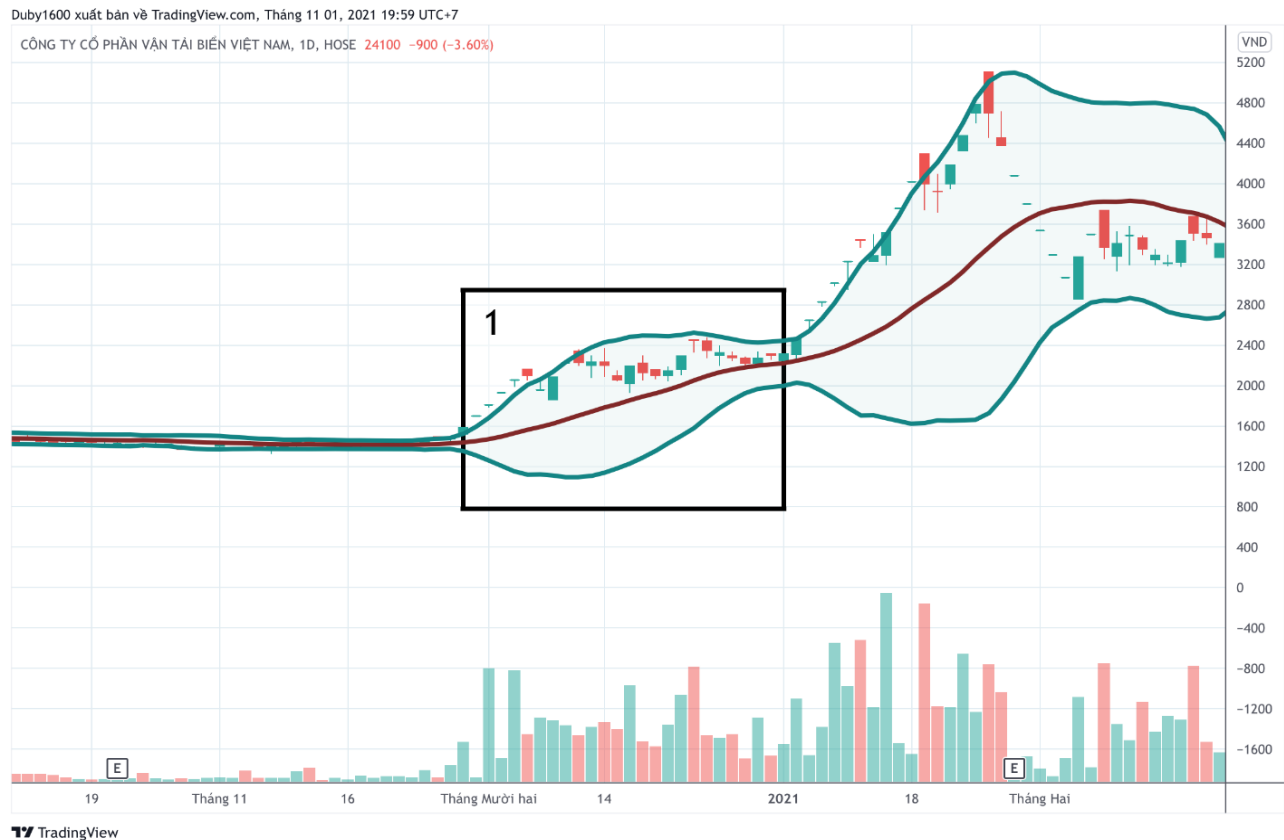


Figure 7: Stock price chart of Vietnam Ocean Shipping Joint Stock Company (ticker symbol: VOS), for the period from October, 2020 to February, 2021. Daily trading timeframe.

Thus, the Bullish Sausage pattern No. 1 on the chart in Figure 7 is a small Bullish Sausage pattern. When this technical pattern ends, i. e. when the Bollinger bands tighten, the stock price increases sharply again. Therefore, the Bullish Sausage pattern No. 1 on the chart in Figure 7 is a Ruby technical pattern. After forming the Ruby technical pattern, VOS's stock price continued to increase until mid-September 2021. The increase was about 1000%, from the price level of 2,300 VND to the price level of 25,000 VND/share.

VII- "Lyly" technical pattern

The Ruby technical pattern signals that a stock's strong bull cycle is about to take place. This strong bull cycle will begin after the completion of Ruby technical pattern, i. e. after the Bollinger bands get close. However, in some cases, the Bollinger bands of the Ruby technical pattern do not yet get close on time before the stock price starting to increase sharply, causing the bands to continue to open to form a double bullish Sausage pattern. This double bullish Sausage

technical pattern is known as the Lily technical pattern. The Lily technical pattern is a special case of the Ruby technical pattern.

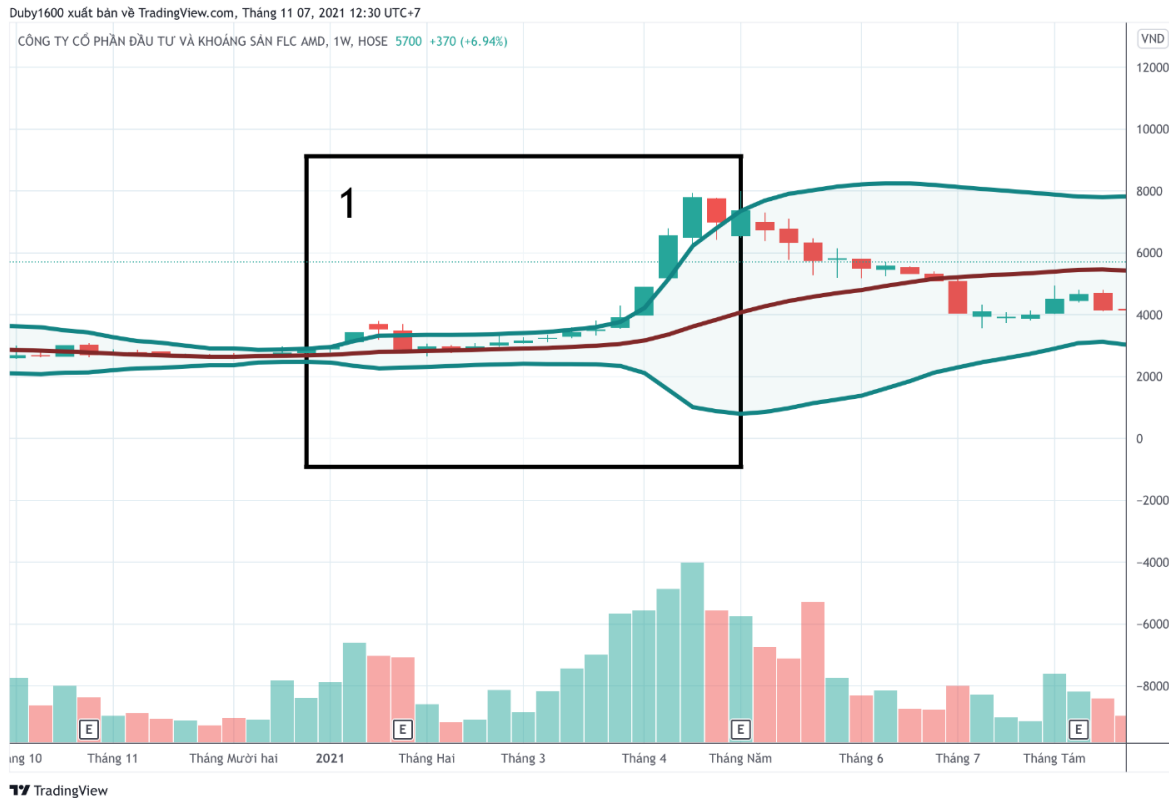


Figure 8: Share price chart of FLC AMD Mining and Investment Joint Stock Company (ticker symbol: AMD), for the period from October, 2020 to August, 2021. Weekly trading timeframe.

For a long time at the end of 2020, AMD’s stock price was stably traded around 2,500 VND to 2,800 VND/share. The Bollinger bands on the chart tightened. At the end of December, 2020, AMD’s stock price started to increase. The increase reached nearly 40%, from the price level of 2,700 VND to the price level of 3,700 VND/share. This rally in AMD’s stock lasted for about 4 weeks and began the opening of a new bullish Sausage pattern on the chart in Figure 8. This new bullish Sausage pattern is denoted as the Bullish Sausage pattern No. 1. After increasing in price and opening the Bullish Sausage pattern No. 1 on the chart in Figure 8, AMD’s stock price corrected and accumulated for 9 consecutive weeks. The Bollinger bands at that time did not yet tighten on time. At the end of March, 2021, AMD’s stock price increased sharply again. This increase was about 120%, from the price level of 3,700 VND to the price level of 7,700 VND/share. This rally caused the Bollinger bands to continue to open wider.

Thus, the first rally in AMD’s stock opened the Bullish Sausage pattern No. 1 on the chart in Figure 8. Before the Bollinger bands tightened on time, the second rally caused the Bollinger bands to continue to expand, so the Bullish Sausage pattern No. 1 is a double bullish Sausage pattern. The Bullish Sausage pattern No.1 on the chart in Figure 8 is the Lily technical pattern.

VIII- “Bottleneck” technical pattern

Bottleneck technical pattern can be a bullish reversal pattern or a bearish reversal pattern.

A. Bullish reversal Bottleneck technical pattern

The bullish reversal Bottleneck technical pattern consists of a large bearish Sausage pattern. This Sausage pattern is made up of 3 stock price waves. The first wave is a strong stock drop wave and opens a bearish Sausage pattern. The falling stock price pushes the lower Bollinger band downwards. The second wave is a strong retracement wave. The stock price when entering the retracement wave increases strongly and goes up to approach the upper Bollinger band. The third wave is an accumulation wave until the Bollinger bands tighten. After the Bollinger bands tighten, the stock price will rise and open a new bullish Sausage pattern.

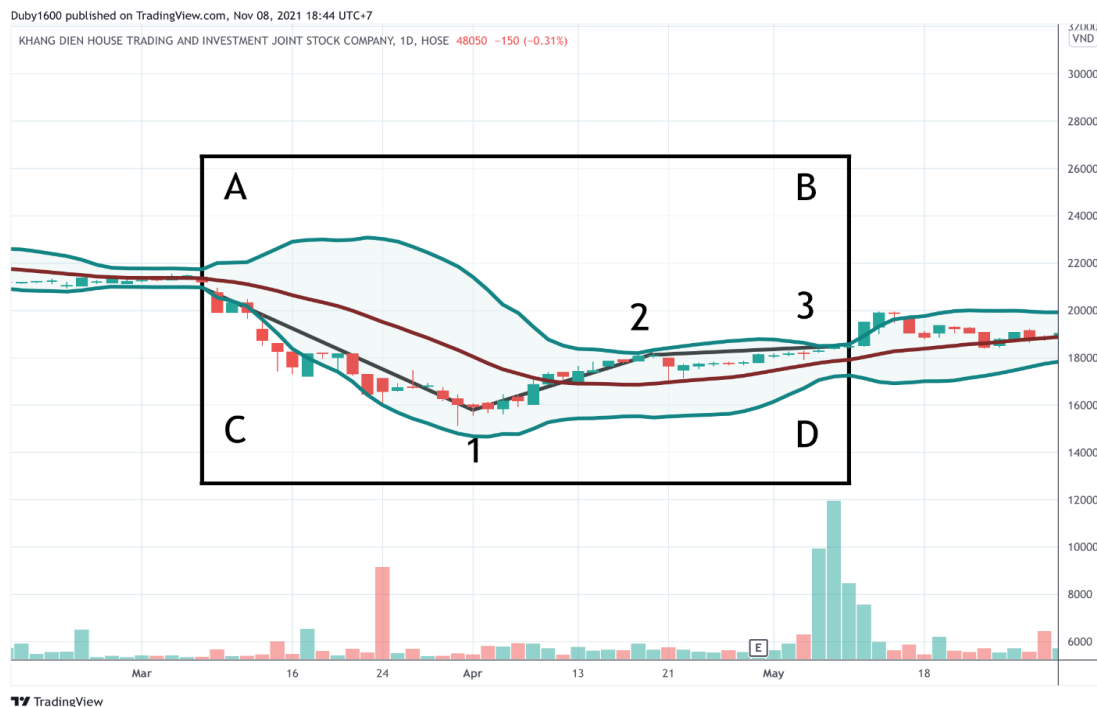


Figure 9: Stock price chart of Khang Dien House Trading and Investment Joint Stock Company(ticker symbol KDH), for the period from February, 2020 to June, 2020. Daily trading timeframe.

At the beginning of 2020, KDH's stock was still in a downtrend. From March 9th, 2020 to April 1st, 2020, KDH's stock price decreased by about 25% from 21,300 VND to 1,600 VND/share (drop wave – No. 1). The drop in KDH's stock price opened a new bearish Sausage pattern and pushed the lower Bollinger band open downwards. From April 2nd, 2020 to April 20th, 2020, KDH's stock price entered a retracement wave (retracement wave – No. 2). When entering the retracement wave, KDH's stock price started to increase from 16,000 VND to 18,500 VND/share. At the end of the retracement wave, KDH's stock price got close to the upper Bollinger band. From April 21st, 2020 to May 11th, 2020, KDH's stock price was stably traded around the price range of 17,500 VND to 18,500 VND/share (accumulation wave – No. 3). The Bollinger bands tightened. From May 12th, 2020 to May 14th, 2020, KDH's stock price increased again and opened a new bullish Sausage pattern.

Thus, the Bollinger bands on the KDH's stock price chart, with the part located in the ABCD rectangle on the chart in Figure 9, formed a bullish reversal Bottleneck technical pattern. After completing the bullish reversal Bottleneck technical pattern, the KDH's stock price continued to increase until the beginning of January, 2022. The increase reached about 210%, from the price level of 18,100 VND to 56,000 VND/share.

B. Bearish reversal Bottleneck technical pattern

The bearish reversal Bottleneck technical pattern consists of a large bullish Sausage pattern. This Sausage pattern is made up of 3 stock price waves. The first wave is a strong rally wave, opening the bullish Sausage pattern. The rising stock price pushes the upper Bollinger band upwards. The second wave is a strong corrective wave. The corrected stock price drops sharply and approaches the lower Bollinger band. The third wave is an accumulation wave until the Bollinger bands tighten. After the Bollinger bands tighten, the stock price will fall and open a new bearish Sausage pattern.

From the end of November, 2018 to the end of January, 2019, VNM's stock price increased and opened a bullish Sausage pattern. From February 11th, 2019 to February 25th, 2019, VNM's share price increased again by about 12%, from the price level of 112,500 VND to the price level of 126,000 VND/share, and opened a new bullish Sausage pattern (rally wave – No. 1). From February 26th, 2019 to March 8th, 2019, VNM's stock price was adjusted from 126,000 VND to 114,500 VND/share (corrective wave – No. 2). After the adjustment, VNM's stock price approached the lower Bollinger band. From March 11th, 2019 to April 18th, 2019, VNM's stock price was stably traded in the range from 112,000 VND to 116,000 VND/share (accumulation wave – No. 3). The Bollinger bands also tightened.

From April 19 th , 2019 to April 23 rd , 2019. VNM’s stock price dropped again and opened a new bearish Sausage pattern.

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Figure 10: Stock price chart of Vietnam Dairy Products Joint Stock Company (ticker symbol: VNM), for the period from January, 2019 to June, 2019. Daily trading timeframe.

Thus, the Bollinger bands on the VNM's stock price chart, with the part located in the ABCD rectangle on the chart in Figure 10, formed a bearish reversal Bottleneck technical pattern. After completing the bearish reversal Bottleneck technical pattern, the VNM's stock price continued to decrease until the end of March, 2020. The decrease reached more than 37%, from the price level of 112,000 VND to 70,000 VND/share.

IX- "One – Two – Three" technical pattern

One – Two – Three technical pattern is a continuation technical pattern. This pattern consists of three Sausage patterns with the same consecutive trend. The first and second Sausage patterns are of the small type and relatively equal. The third Sausage pattern is of the large type. The One – Two – Three technical pattern can be a bullish or bearish pattern.

A. Bullish One – Two – Three technical pattern

Bullish One – Two – Three technical pattern consists of three consecutive bullish Sausage patterns. The first and second bullish Sausage patterns are the small bullish Sausage pattern, and the third bullish Sausage pattern is the large bullish Sausage pattern.

If a stock price has two slight rallies lasting about the same amount of time and opens two small bullish Sausage patterns on the chart, the third rally will be a strong bull run. This strong bull run will open the third large bullish Sausage pattern.

During the second half of 2012, PVS's stock price was traded stably in the range of 9,200 VND to 9,600 VND/share. The Bollinger bands on the weekly chart tightened. From the end of December, 2012 to the end of February, 2013, PVS's stock price increased by about 25% from the price of 10,000 VND to 12,500 VND/share, and opened the bullish Sausage pattern No. 1 on the chart in Figure 11. The bullish Sausage pattern No. 1 ended after lasting until mid-May 2013. The Bollinger bands tightened. From the middle of May 2013 to the beginning of June 2013, PVS' stock price increased again by about 22%, from the price level of 11,500 VND to the price level of 14,000 VND/share, and opened the bullish Sausage pattern No. 2. The bullish Sausage pattern No. 2 ended after lasting until the end of October, 2013. The Bollinger bands tightened. From the end of October, 2013 to the middle of February, 2014, PVS's stock price increased sharply again.

In this third rally, PVS's stock price increased by nearly 90%, from the price level of 132,500 VND to the price level of 248,400 VND/share, and opened the bullish Sausage pattern No. 3.

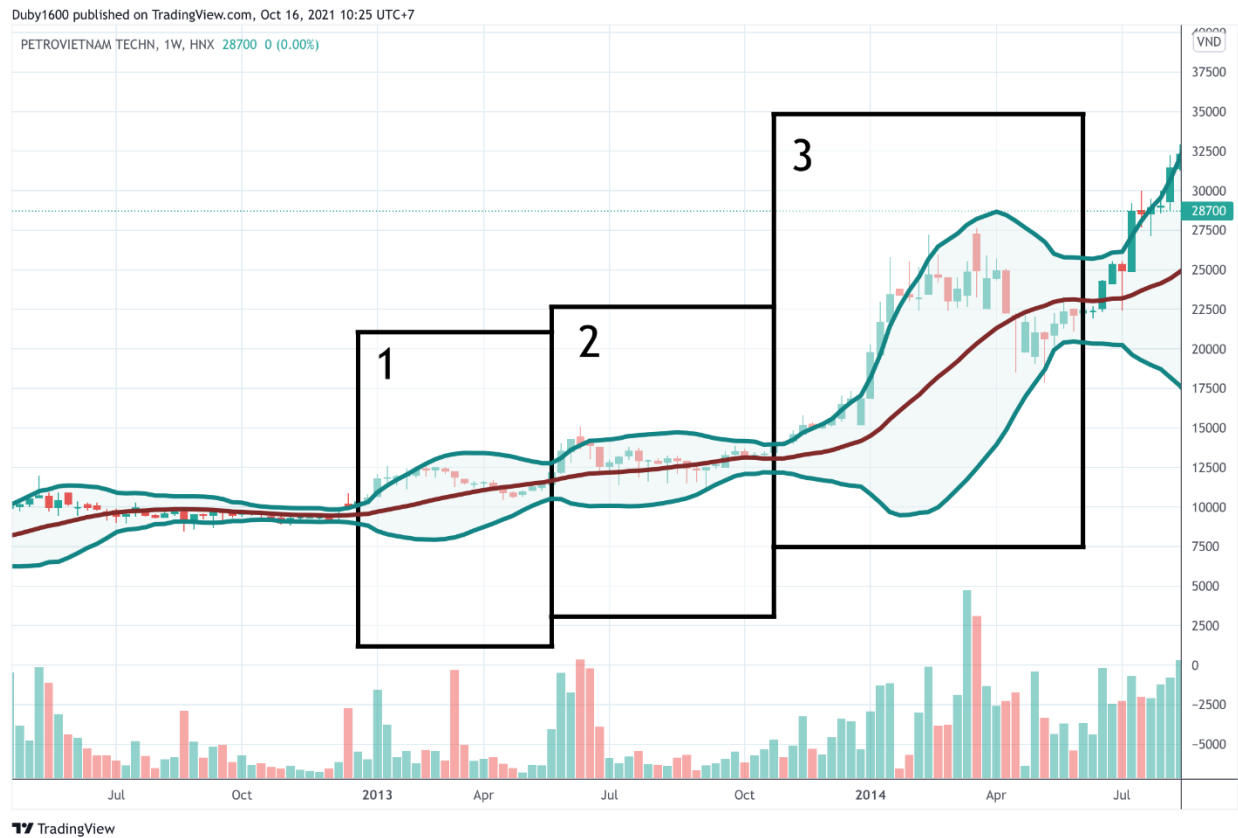


Figure 11: Stock price chart of PetroVietnam Technical Services Corporation (ticker symbol: PVS), for the period from June, 2012 to August, 2014. Weekly trading timeframe.

Thus, the first and second rallies of PVS’s stock price were two slight rallies and opened the two small and relatively equal bullish Sausage patterns. The third rally was a strong bull run and opened a large bullish Sausage pattern. The three bullish Sausage patterns No. 1, 2 and 3 on the chart in Figure 11 form a bullish One – Two– Three technical pattern.

B. Bearish One – Two – Three technical pattern

Bearish One – Two – Three technical pattern consists of three consecutive bearish Sausage patterns. The first and second bearish Sausage patterns are the small bearish Sausage pattern, and the third bearish Sausage pattern is the large bearish Sausage pattern.

If a stock price has two slight drops lasting about the same amount of time and opens two small bearish Sausage patterns on the chart, the third drop will be a strong bear run. This strong bear run will open the third large bearish Sausage pattern.

During January, 2015, HQC’s stock price was traded stably in the range of 6,600 VND to 6,870 VND/share. The Bollinger bands on the weekly chart tightened.

From January 30 th , 2015 to February 3 rd , 2015, HQC’s stock price decreased slightly by about 8% from the price of 6,850 VND to 6,300 VND/share, and opened the bearish Sausage pattern No. 1 on the chart in Figure 12. The bearish Sausage pattern No. 1 ended after lasting until March 16 th , 2015. From March 17 th ,2015 to April 1 st , 2015, HQC’ stock price decreased again by about 8%, from the price level of 6,380 VND to the price level of 5,830 VND/share, and opened the bearish Sausage pattern No. 2 on the chart in Figure 12. The bearish Sausage pattern No. 2 ended after lasting until April 27 th , 2015. The Bollinger bands also tightened. From May 4 th , 2015 to May 18 th , 2015, HQC’s stock price decreased sharply again. In this time, HQC’s stock price decreased by about 20%, from the price level of 5,920 VND to the price level of 4,720 VND/share, and opened the bearish Sausage pattern No. 3 on the chart in Figure 12.

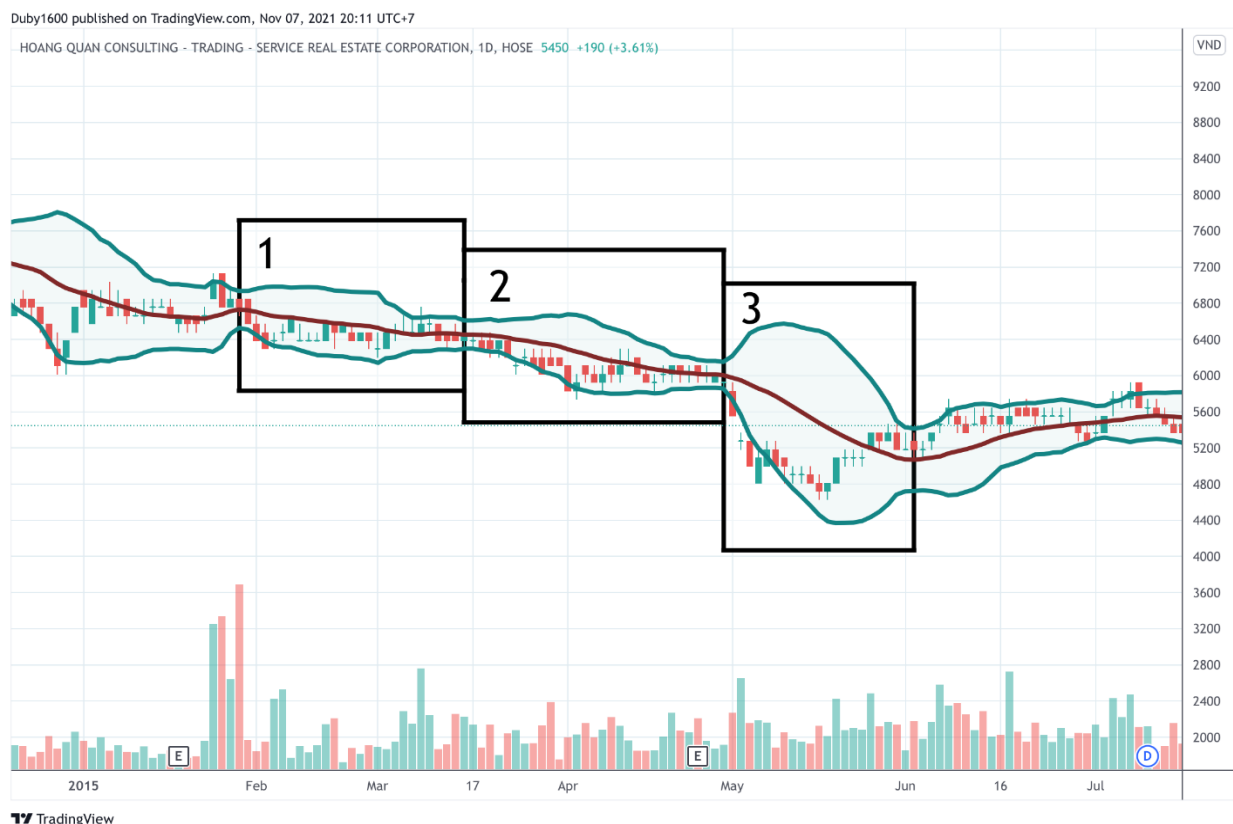


Figure 12: Stock price chart of Hoang Quan Consulting – Trading – Service Real Estate Corporation (Ticker symbol: HQC), for the period from December, 2014 to June, 2015. Daily trading timeframe.

Thus, the first and second drops of HQC’s stock price were two slight drops and opened the two small and relatively equal bearish Sausage patterns. The third drop was a strong bear run and opened a large bearish Sausage pattern. The three bearish Sausage patterns No. 1, 2 and 3 on the chart in Figure 12 form a bearish One – Two – Three technical pattern.

X- “Trinity” technical pattern

Trinity technical pattern is a complex technical pattern, consisting of three phases. The first phase is a strong retracement wave. The stock price is in a strong downtrend. When entering the retracement wave, it reverses to increase sharply and moves from the lower Bollinger band to the upper Bollinger band. The second phase is a stable bull cycle over a long period of time. During this stable bull cycle, the stock price does not open a new bullish Sausage pattern but only slowly pushes the upper Bollinger band upwards. The third phase is a strong rally wave and opens a bullish Sausage pattern. After creating the peak, the stock price will turn to a corrective wave and the Trinity technical pattern ends.

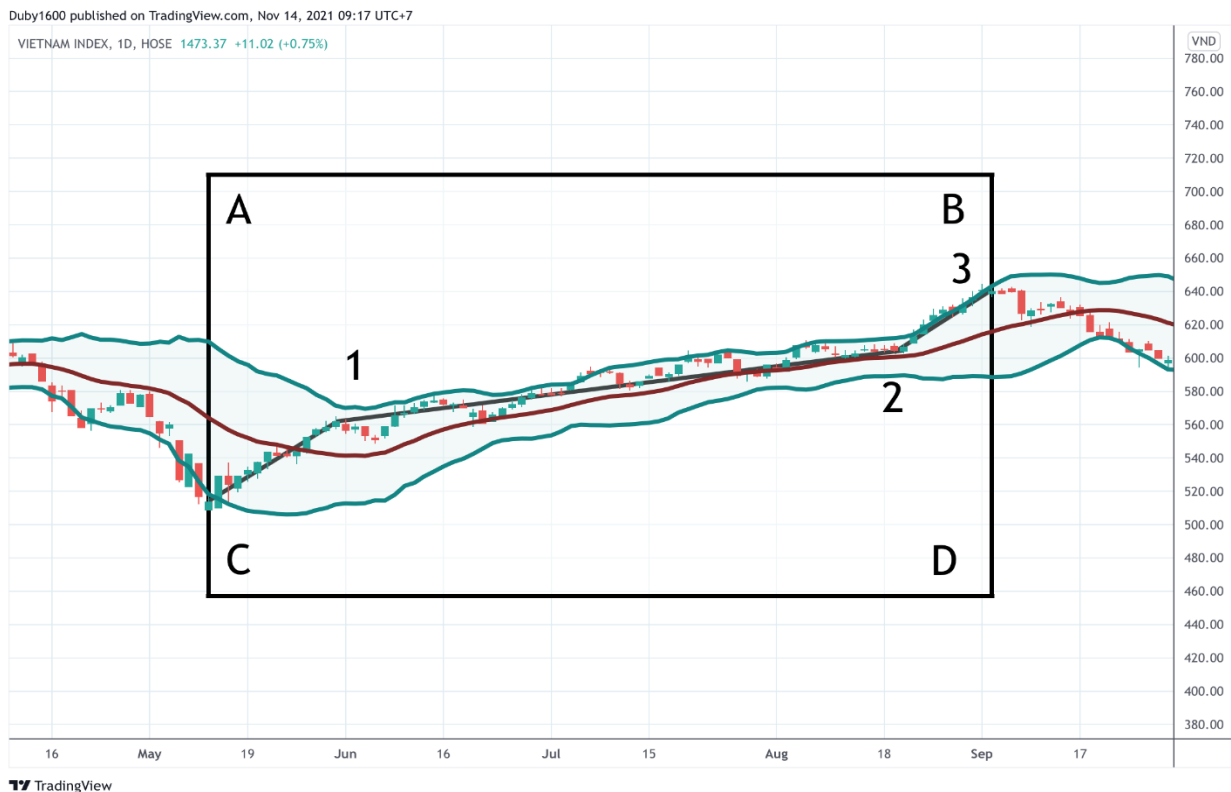


Figure 13: Chart of VN-Index for the period from April, 2014 to September, 2014. Daily trading timeframe.

During April, 2014 and the beginning of May, 2014, VN-Index continuously declined its score and opened the bearish Sausage pattern on the chart in Figure 13.

From May 14th, 2014 to May 30th, 2014, VN-Index entered the retracement wave (Retracement wave – No. 1). When entering the retracement wave, in just 13 trading sessions, VN-Index increased strongly by about 10%, from 510 points to 562 points. At the end of the retracement wave, VN-Index got close to the upper Bollinger band. For a long time after that, from June 2nd, 2014 to August 19th, 2014, VN-Index only increased by about 7%, from 562 points to 604 points (Score raising wave – No. 2). From August 20th, 2014 to September 3rd, 2014, VN-Index increased strongly again (Score rally wave – No. 3). In just 9 trading sessions, VN-Index increased by 7%, from 604 points to 640 points, and opened a new bullish Sausage pattern.

Thus, the three waves 1, 2 and 3 on the chart in Figure 13 formed a Trinity technical pattern. After the completion of Trinity technical pattern, VN-Index entered a corrective wave.

XI- Some forecasts using DUBY1600 Waves

A. Forecasting Donald Trump wave and strong growth wave of the US securities market after President Donald Trump took office at the end of 2016.

<https://www.facebook.com/100004916947389/posts/1112379412269280/>

B. Forecasting the growth of Vietnamese securities market in the period of 2016 –2019:

<https://www.facebook.com/100004916947389/posts/1477426709097880/>

C. Forecasting the world economic crisis in 2020 caused by the COVID-19 Pandemic:

<https://www.facebook.com/100004916947389/posts/1501626446677906/>

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Web: <https://www.hnx.vn/>

Web: <https://www.hsx.vn/>

Web: <https://vn.tradingview.com/>