Circuit Breakers: International Practices and Effectiveness

by Supervision of Markets Division of the Securities and Futures Commission

Overview

"Circuit breakers" and "price limits" are used by some exchanges and regulators in the face of severe price movements in financial markets. Circuit breakers are trading halts triggered by sharp price movements. They could be imposed on an individual financial instrument or the market as a whole. Price limits are maximum percentages or values that a security or derivative contract could rise or fall during a trading day. There is no trading halt and trading can continue within the limit bounds.

Market-wide circuit breakers, which involve closing the entire market, are less popular than price limits on individual shares or derivatives because of their disruptive nature.

There is no consensus on whether circuit breakers are effective tools during crises. Also, to date, there is still no convincing evidence on the effectiveness of circuit breakers. Supporters believe that circuit breakers provide investors with a "cooling off" period to calm the fear and panic that may occur when there are steep market declines. Opponents believe that they could be counter-productive as they would lead to liquidity drain and diminish market depth.

"Speed bumps" or "shock absorbers" are variations of price limits. Some futures exchanges in the US have adopted speed bumps to slow down (but not to halt) the trading of stock index futures. The limits are set at levels much narrower than those of circuit breakers or price limits.[1] Speed bumps are not popular in other markets.

The International Organisation of Securities Commissions Standing Committee 2 (IOSCO SC2) is currently conducting a survey on the current practices of trading halts in various markets, as well as trading halts across markets (cash versus derivatives) and borders (multi-listed or traded).

Debate on the Effectiveness of Circuit Breakers

There are two schools of thought on the effectiveness of circuit breakers. Those who support circuit breakers argue that circuit breakers:

- provide investors with "cooling off" period to calm fears or provide time to digest news when there are steep declines in the markets;
- reduce market volatility and protect investors from excessive market volatility;
- provide time to restore the equilibrium between buyers and sellers; and
- provide the opportunity for increased information flow.

Those against circuit breakers argue that circuit breakers:

- prevent investors from engaging in equity transactions that reflect their assessments of economic events. Investors might therefore be trapped in their positions;

[1] *These include "opening" price limits for stock index futures traded at the Chicago Mercantile Exchange (CME) which are effective only for the first 10 minutes of trading, and "interim" price decline limits for stock index futures traded at the CME, Chicago Board of Trade (CBOT) and Kansas City Board of Trade (KCBT).*

Circuit Breakers in the United States

Circuit breakers are security-specific or market-wide trading halts triggered by sharp price movements. They were first adopted by the New York Stock Exchange (NYSE) and other US exchanges in 1988. Circuit breakers had been recommended by a Presidential Task Force in the aftermath of the stock market crash on 19 October 1987 when the Dow Jones Industrial Average (DJIA) fell 508 points, or 22.7%. These circuit breakers were not triggered until a decade later, on 27 October 1997.

A typical circuit breaker will have one or more threshold levels in terms of percentage of market decline. If the threshold level is reached, the trading of the security or market will be suspended for a specified period of time (Table 1).

Table 1 - NYSE's Circuit Breaker Trigger Points and Duration for Third Quarter 2001

	Before 1:00 p.m.	1:00 p.m. - 1:59 p.m.	2:00 p.m. - 2:29 p.m.	2:30 p.m. or Later
1,100-point decline in the Dow Jones Industrial Average (DJIA)	1 hour halt	1 hour halt	1/2 hour halt	No halt; if decline continues to 2,150 points, then close for day
2,150-point decline in the DJIA	2 hour halt	1 hour halt	Close for day	Close for day
3,250-point decline in the DJIA	Close for day	Close for day	Close for day	Close for day

The specific point decline of 1,100, 2,150 and 3,250 are based on the trigger level of 10%, 20% and 30%, calculated at the beginning of each calendar quarter, using the average closing value of the DJIA for the prior month.

Sources: various exchange websites

- accelerate price movements towards the pre-announced limits (the "magnet effect") as market participants alter their strategies and trade in anticipation of a market halt;
- induce panic and uncertainty if the markets shut down suddenly and scare away buying power necessary to turn a selling panic around;
- are unfair to market participants with positions that benefit from the volatility; and
- deprive market participants of opportunities to raise liquidity to meet other obligations and lead to a chain of defaults.

In essence, circuit breakers deprive market participants of the opportunities to transfer risk and interrupt the price discovery process, two key functions of markets.

Nasdaq has agreed, upon request of the Securities and Exchange Commission, to halt the trading of their markets should the NYSE declare a market-wide trading halt. The options, futures and other securities exchanges have adopted rules that are consistent with the NYSE circuit breaker rules (Table 2).

Table 2 - Circuit Breaker Price Limits and Trading Halts in Major US Exchanges

<table>
<tr><th></th><th>Before 1:00 p.m.</th><th>At or After 1:00 p.m. but Before 2:00 p.m.</th><th>At or After 2:00 p.m. but Before 2:30 p.m.</th><th>At or After 2:30 p.m.</th></tr>
<tr><td>10 % fall</td><td colspan="2">NYSE Halts One Hour</td><td>NYSE Halts Half Hour</td><td>No Halt</td></tr>
<tr><td></td><td colspan="3">Chicago Mercantile Exchange (CME) and Chicago Board of Trade (CBT) will halt trading when the relevant futures contract is limit offered and a trading halt is declared on the NYSE.
Kansas City Board of Trade (KCBT) and New York Futures Exchange (NYFE) will halt trading if NYSE declares a trading halt.</td><td>CME and KCBT will treat 10% price limit as a speed bump.*</td></tr>
<tr><td>20 % fall</td><td>NYSE Halts Two Hours</td><td>NYSE Halts One Hour</td><td colspan="2">Trading halts for the remainder of the day.</td></tr>
<tr><td></td><td colspan="2">CME and CBT will halt trading when the primary futures contract is limit offered and a trading halt is declared on the NYSE.
KCBT and NYFE will halt trading if NYSE declares a trading halt.</td><td colspan="2">All futures trading halts for the remainder of the day.</td></tr>
<tr><td>30 % fall</td><td colspan="4">Equity and futures trading halts for the remainder of the day if Dow declines by 30% at any time during the day</td></tr>
<tr><td colspan="5">* "Speed bumps" or "shock absorbers" are variations of price limits. The CME and KCBT employ intermediate price decline limits at levels below the circuit breaker levels to slow down (but not to halt) the trading of stock index futures.</td></tr>
</table>

Sources: various exchange websites

There is no consensus on the effectiveness of circuit breakers because of the fact that in different markets, the same circuit breaker may perform differently. The difficulty may be due to the following reasons:

- By their very nature, extreme market movements are quite rare. One cannot hope to create a statistically significant sample of extreme market movements for analysis. In the US, there was only a single case of execution of market-wide circuit breakers in October 1997.

- The effectiveness of circuit breakers may vary across markets. The parameters that may affect their effectiveness are:

  ➢ The percentage distribution of institutional investors and retail investors. Institutional investors use the market halt to re-asses market information, but it may bring panic and fear to the less sophisticated retail investors.

  ➢ The percentage distribution of foreign and local

Price limits

Price limits set a maximum percentage or value that a security or derivative contract could rise or fall during a trading day. Price limits are common features of commodity futures contracts traded in the US since 1925. Over time, they have been adopted on financial futures contracts as well.

Unlike circuit breakers, price limits are not a trading halt per se, since they do not create a timeout from the trading process. Trading can continue immediately if buyers and sellers agree to a price within the limit bounds. For example, at the Korea Stock Exchange, the allowable daily trading band for share price fluctuation is 15%.

Because of its less disruptive nature, price limits are instituted in more markets than circuit breakers. The following table lists the major stock markets that have price limits in place, ranging from 5% to 60% (Table 3).

Not many overseas exchanges have both market-wide circuit breakers and price limits in place. The Korea Stock Exchange and Thailand Stock Exchange have instituted both market-wide circuit breakers and price limits.

Table 3 - Stock Markets with Price Limits

Stock Markets	Price Limit
Austria	± 15%
Belgium	± 5 - 10%
Finland	± 15%
France	± 15%
Luxembourg	± 5%
Portugal	± 15%
China	± 10%
Japan	± 10 - 60%
Korea	± 15%
Malaysia	- 30% (downside limit only)
Taiwan	± 7%
Thailand	± 30%

Sources: various exchange websites

investors. Foreign investors may move their capital to other countries.

- The general educational level, investment experience and cultural characteristics, etc., of retail investors may make them react differently (panic or calm).
- The availability of substitute markets to shift trading either to markets in other countries or to the over-the-counter markets.

The Situation in Hong Kong

Hong Kong Exchanges and Clearing Limited (HKEx) does not impose any circuit breaker or price limit on its markets. In early 1997, the Stock Exchange of Hong Kong, when consulting participants on the third generation of the Automatic Trade Matching Execution System (AMS/3), had also sought their views on circuit breakers. Market participants were largely non-supportive of circuit breakers.

The Hong Kong Futures Exchange removed the maximum fluctuation limit imposed on the Hang Seng Index and sub-index futures and options contracts in late 1997 in the belief that the global trend was to let market forces determine the direction of markets.

Circuit breakers are a double-edged sword and should be used with care. In his testimony before the Senate Subcommittee on Securities, Chairman Arthur Levitt of the US Securities and Exchange Commission pointed out that circuit breakers should be triggered only in extraordinary circumstances such as in "a severe market decline where prices dropped so dramatically that liquidity and credit dry up or when prices threaten to cascade in a panic-driven spiral".[2]

As an international financial centre, the stock market and futures market in Hong Kong are open to both domestic and overseas investors. The imposition of circuit breakers is likely to reduce the attractiveness of Hong Kong to overseas investors because a trading halt triggered by circuit breakers not only interferes with the price discovery function of markets, it also deprives investors the right to trade, hedge or unload their positions, and inevitably discriminates one class of investors against another. It may drive trading volume to markets where there is no such artificial limit, for example in London and New York where Hong Kong stocks trade actively or in over-the-counter markets. Indeed, the T+2 settlement period in Hong Kong has helped to attract investors because of its promise of providing liquidity in two days' time.

Since the 1987 stock crash, Hong Kong markets have been operating under free demand and supply where market forces determine the ultimate price levels. Under emergency circumstances, the Securities and Futures Commission (SFC) and HKEx have the power to suspend the trading of specific securities or markets. However, this power would not normally be exercised simply because of very high price volatility. Rather, the market would need to be seen as unfair and/or sufficiently disorderly to trigger a closure and then only for so long as necessary to restore a fair and orderly market. The policy intent of the SFC and HKEx is to keep the markets open and functioning at all times.

[2] *Testimony of Arthur Levitt, Chairman, US Securities and Exchange Commission, "Concerning Circuit Breakers" Before the Subcommittee on Securities of the Senate Committee on Banking, Housing and Urban Affairs, 29 January 1998.*

Appendix - Circuit Breakers of Other markets

Market	Trigger Level for Trading Halt or Price Limit	Length of Trading Halt
Brazil (market -wide)	• The Sao Paulo Stock Exchange Index falls 10% of the previous day's close • Fall reaches 15% after trading is reopened	• 30 minutes • 1 hour
Canada (market - wide)	• Market halts if the Dow Jones Average falls: ➢ 10% ➢ 20% ➢ 30% • Trading halts in stock market triggers halts in futures market	• 30 minutes • 1 hour • 2 hours
Italy (security - specific)	• +10% with respect to shares and units in closed end investment schemes • +30% with respect to warrants and pre-emptive rights • +5% with respect to convertible bonds	• Decided by the Market Management Company
South Korea (market - wide)	**Cash Markets** • Korea Composite Stock Price Index (KOSPI) continues falling down 10% or more of the previous day's close for one minute • 20 minutes after the trigger of circuit breakers, the exchange will collect orders from its members for 10 minutes and those orders are matched by a single price • Circuit breakers are triggered only once a day and are not triggered after 2:20 pm (40 minutes before market closing) **Futures Markets** • The lead month contract hits +/- 5% of the previous day's close and the deviation rate of the current futures price from the theoretical price is +/- 3% • For the next 10 minutes following the cooling period, the orders are collected and then matched by call trading • Circuit breakers run only once a day and shall not be triggered after 2:20 pm • KOSPI falls 10% or more from the previous day's close for one minute	• 30 minutes • 5 minutes • 20 minutes
Switzerland (security - Specific)	Trading is halted when the price movement of a security has exceeded the acceptable parameters set by the exchange **During opening:** **Equities, Investment Funds and Exchange Traded Funds** • If potential opening price deviates by 2% or more from reference price. No stop in trading of securities priced less than SFr 10 **During continuous trading:** • If the potential follow-up price deviates by more than 2% from reference price. No stop in trading of securities priced less than SFr 10	• Delay of 15 minutes • Interruption of 15 minutes
Thailand	• If the Stock Exchange of Thailand (SET) Index falls 10% from previous day's closing • If the SET Index continues to drop by 20%	• 30 minutes • 1 hour

Sources: various exchange websites