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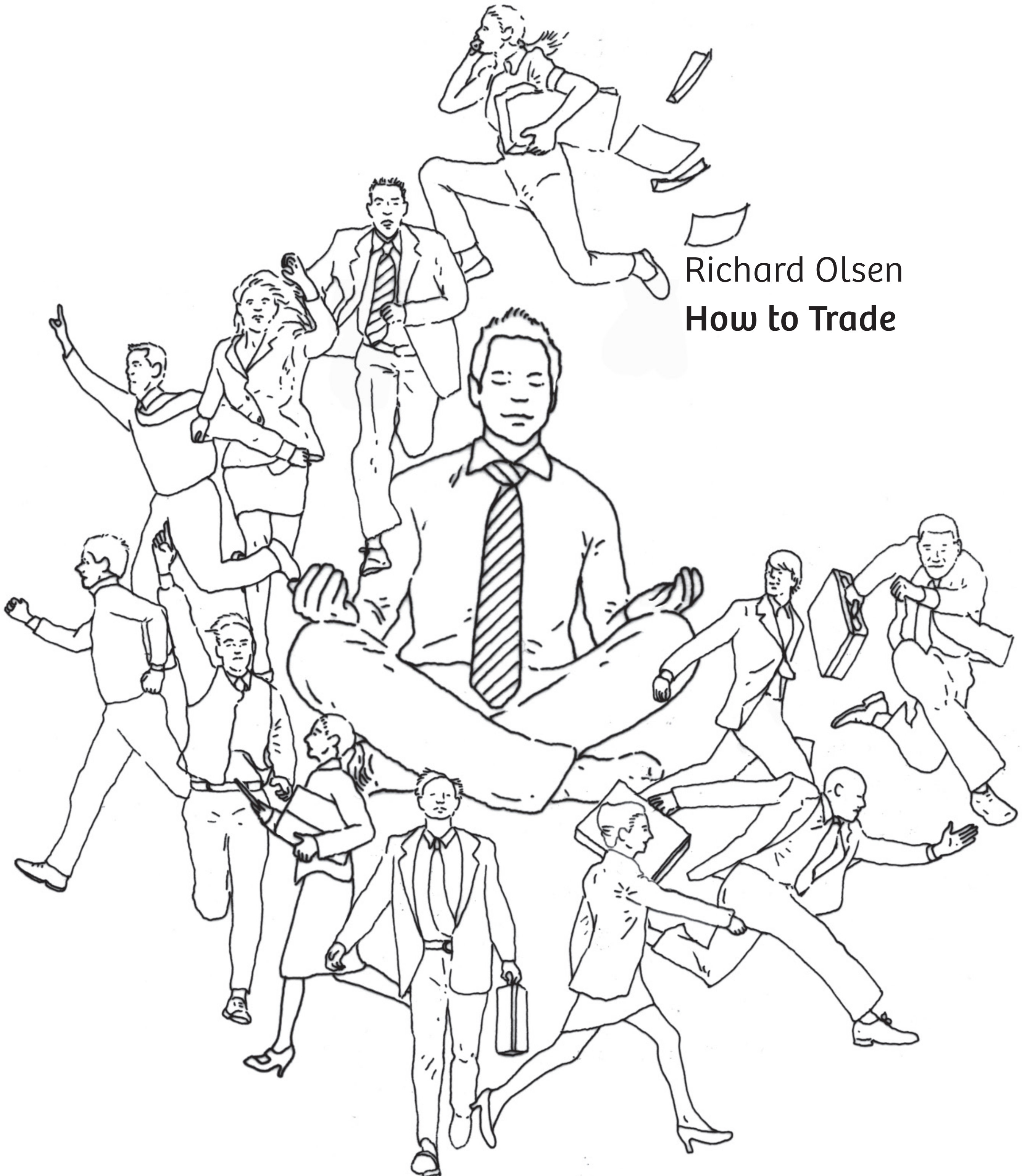

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How to Trade

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Introduction

High frequency finance, with the analysis of tick-by-tick market data, offers new insights in how to trade. Before you continue reading, I want to caution you that over 80% of the traders in any one-year lose money. Of the 20% who ended with a profit, many were just lucky and are likely to lose money in the following year. Does this mean that it is impossible to make money in financial markets? No, definitely not – it is feasible to earn money on a consistent basis, but it is difficult.

The reason why you can make money is simple: during the course of one year, the price risk is a lot smaller than the profit opportunity. The price change from say the 1st of January to the 31st of December for a particular exchange rate is 10, 20 or rarely 30 percent. If you sum up all price movements larger than 0.05% during the course of one year and deduct transaction costs, then you could, with perfect foresight, earn 1600% without leverage - that is more than 50 times the risk of 30 percent, so a big opportunity to make money does exist.

Trading is so difficult because **98%** of the volume in liquid markets is speculative; only **2%** is fundamentally driven. The 98%, the speculative volume, is the major force of the market determining the price trajectory – you need to understand the behaviour of the speculative traders to make money.

The impact of speculative trading is harder to decipher than fundamental market forces because speculative positions impact the market twice: first when a trade is opened and then again when the position is closed. This duality makes it difficult to correctly analyze price movements. To make things even more complex, there are different groups of speculators, including short-, medium- and long-term traders, traders based in Europe, the US and Asia, trend-following and counter-trend traders and many more.

For full disclosure, I need to add another remark of caution. Human traders cannot compete successfully with sophisticated quantitative trading models, which systematically process every tick of market data. Why do I say this? Human traders can be compared to a physics professor in an airplane about to take off: in principle, the professor knows all the principles of aerodynamics that are put to work in the airplane, but he cannot explain and compute all the equations on the fly. Quantitative trading models have a competitive edge; they are based on algorithms that aggregate the knowhow that researchers specialized in a number of disciplines have brought together, and deploy this embedded knowledge in a systematic and con sistent manner; quantitative algorithms do not miss a price tick; they do not need to sleep, eat or go on holidays.

To be honest, financial engineering is still in its infancy and is not yet at the stage of other engineering disciplines such as aerodynamics and computers. I reckon that finance today is equivalent to computer technology in 1968 and thus has a long way to go.

Even though we, as human beings, cannot compete with quantitative models, I definitely find it useful for us to learn to trade. Financial markets are a driving force of modern society, and it is important that we understand the dynamics of financial markets. To acquire a thorough knowledge of markets, it is important that we get our hands dirty and learn to trade successfully. It is only through personal experience that we start to really understand how markets function. Some of you will enjoy the thrill of trading; it can be like playing sports or another competitive game. But beware; trading, with all its excitement, can turn into an addiction. Only trade with as much money as you can afford to lose; if you have not mastered the rules of trading, an unexpected price move can wipe out your account.

In this small booklet I discuss how traders need to restrain their natural urge to open large positions. There is an abundance of trading opportunities. So for any one trading idea, it is better to reserve a limited amount of capital and to have a contingency reserve in case that the trading idea was premature.

I also discuss apparently irrational market movements that turn fundamentals upside down. They occur when an initially small price spike triggers a whole cascade of price moves fuelled by a sequence of margin calls. When market participants have large unrealized losses, any small price spike can trigger margin calls; the position closeouts increase the imbalance of buyers and sellers and fuel a continuation of the price move, which may last for only a few minutes or hours, but can also take days, weeks or even months.

Finally, I will cover a number of different issues from turning a losing position into a profitable trade through active management of the position to implementing stop loss strategy and trade diversification.

This booklet does not include any technical or fundamental analysis. In general, the usefulness of these methods is exaggerated. You might be shocked to read that I do not have a lot of faith in their ability to be good predictors of financial markets. These approaches scratch the surface and can only spuriously explain the market movements – they seem to work precisely because the coastline of price movements is so long. The tools are helpful because they provide a frame of reference and are a means of making your trading decisions more consistent: When you get bruised by big losses or your ego gets ahead of itself, you should stick to your trading strategy when it prints money.

You have time

The most common mistake that a trader makes is to rush into a position too quickly and to be too aggressive in his opening trade. There is no need to rush into a position and make a big trade; you have all the time in the world. I strongly recommend that you temper your natural impulse of trading at a high pace with large positions.

Let me explain why I give this advice. The coastline of the sum of all the up and down movements at a threshold of 0.05% has a length of 1600% for every exchange rate and it is similarly long for other financial instruments. With perfect foresight, it would be possible to earn a whooping 1600% in profits per year after paying for all the transaction costs. If in real life a trader earns 3% by just trading his equity with no leverage, he is successful by any standard; if he earns 6% during the course of a year with no leverage, he literally enters the hall of fame. If you are able to successfully realize 0.375% of the 1600% coastline of profit opportunities, which is 6% on an unleveraged basis, you get into the hall of fame. Hence, there is no need to rush into a position. There is an abundance of profitable trading opportunities; choose your battle ground carefully and only open a trade that you believe in.

The reason that I emphasize that you should choose your battleground carefully and should believe in the motivation of your trade is simple: Financial markets are fractal. They do not move in straight lines; instead, there is a continuous up and down. Whenever there is a price movement in the opposite direction of your trade, you cannot be certain that the trend will reverse. As you sit there and observe the market, you start to second-guess your decision. If you have opened your position hastily, you will soon feel uncomfortable with your trade and will then be inclined to close out your position during such a draw down and then open a trade in the opposite direction. If you do this, your trading will lag behind the market and you will be out of step and just accumulate losses.

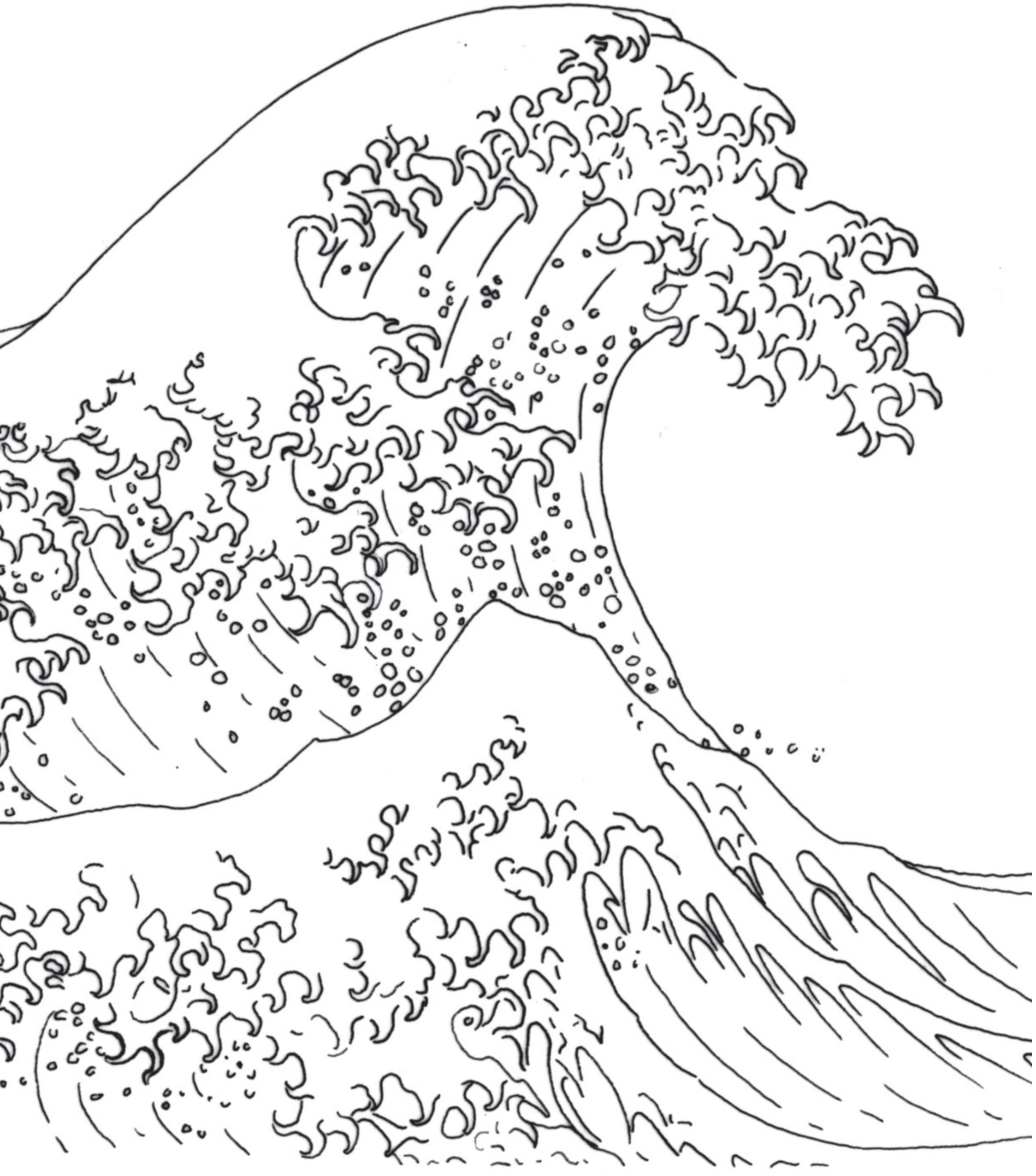
Trade in small size

The most common mistake of a trader is to be too aggressive and open positions that are far too large. If the position is too large and the market moves temporarily against your position, you do not have sufficient margin capital to pull your position through and are stopped out. You are then forced to close out your position at the worst possible moment during a temporary down tick.

As human beings, we are inclined to open positions that are too large because we are not very good at forecasting the size of tail events. Just try and remember when you last dropped a glass and had to collect the glass splinters. I am sure that you were surprised at how widely dispersed the glass splinters were.

By analogy, the same is true for market moves. The large market moves are far bigger than we expect. At all times, you need sufficient reserve capital to cushion an unrealized loss from your open positions. I conjecture that the most successful traders excel because they manage to keep exposure very low; they rarely open positions larger than 10 to 20 percent of equity (at peak time, exposure for any one position will rarely be larger than one time equity).

You can trade in small size and still reach your profit target because the coastline of each instrument is so long and there are many different instruments that you can trade in. After all, it is paramount to conserve your capital; if you are stopped out and have lost your capital, you are out of the race.



Beware of unforeseen price cascades

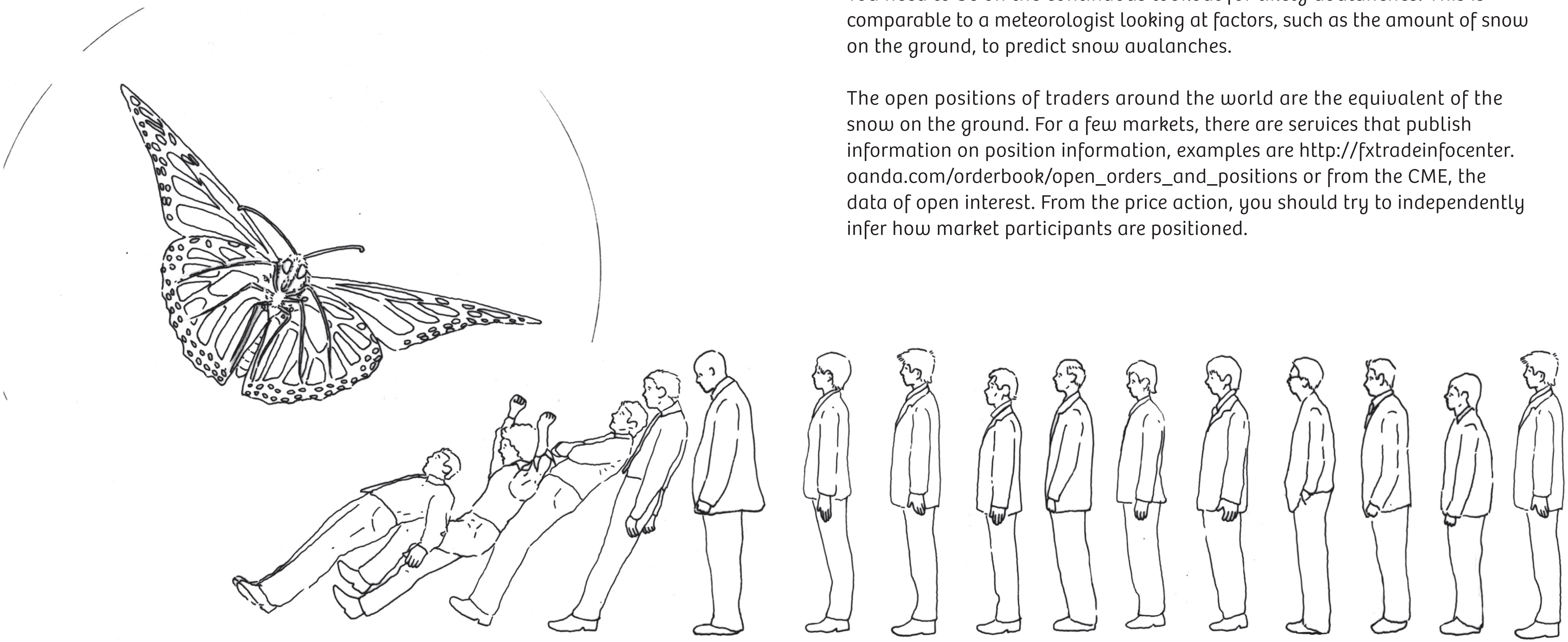
Currency markets have a daily turnover of spot transactions of approximately 1.4 trillion USD; this is a mind-boggling number, equivalent to approximately 10 percent of the annual US GNP. The daily turnover translates into a flow per minute of 1 billion USD, which is still a lot of money. If we go a step further and compute the volume per second, then the turnover collapses to only 16 Mio per second, which equates to 8 Mio buying and another 8 Mio of selling volume for all exchange rates together.

On a second by second basis, the volume is a mere trickle; this is a huge contrast to the mind-blowing number for a full 24 hour trading day. For the individual exchange rates, the second by second volume numbers are a lot smaller: for EURUSD with the biggest turnover, the volume per second is 3.5 Mio USD and, for a minor exchange rate, such as USDCAD, only a trifle of 250’ 000 USD per second. The trickle volume on a second by second basis is also true for other markets, such as equity and fixed income markets. There the situation is even more extreme; the volumes in these other markets are 10 times smaller for the fixed income and 50 times smaller for the equity markets.

In foreign exchange, the spreads are low; for EURUSD, they are as low as 0.006 percent. The size of the spread is small when compared with the average daily price move of 0.6%, so the risk as market maker is high. If the market maker cannot sell his inventory, then he risks incurring a large loss. He can only generate a profit if he carefully manages risk. He needs to aggressively skew his prices up or down to minimize his exposure. If he does not do this, then a small imbalance of buying and selling will result in a large exposure, where he risks incurring a loss. This implies that even small orders have a big price impact.

Compared to the trillions that are traded every day, it is thus paradoxical that already small market orders can move the market. For minor currencies, 50 Mio is enough to move the exchange rate by 0.2 percent. For the major currencies such as EURUSD, the necessary amount is roughly 100 to 200 Mio depending on the time of day; these numbers are peanuts in the bigger picture. To move the EURUSD by 0.2 percent, a trade of 200 Mio USD needs to be made, which requires as little as 5 Mio USD in terms of equity. It is astounding that an economy with a GDP of 14 trillion can have its exchange rate moved by 0.2% due to the actions of a trader with 5 Mio USD of equity.

Because a small market order can move the market, there is no certainty of the direction of the next price move – at any time, there may be an unexpected price spike, up or down. It is sufficient if just one person anywhere in the world decides to buy or sell in size for a price spike to occur. Under specific circumstances, such a price spike can lead to cascading margin calls and bring about a price avalanche.



Butterflies cause avalanches of cascading margin calls

Price spikes trigger closeouts from traders who have already accumulated large unrealized losses and whose positions are hovering close to the stop; be it the voluntary stop of the trader or the margin call at which the market maker will close the position.

If a price spike triggers the stops of traders and forces them to close their positions, the closeouts further increase the imbalance of buyers and sellers and induce the market maker to skew the price even more fuelling a continuation of the price move with more margin calls. Starting with a small price spike, there may be one margin call triggering the next and turning an initially innocuous price spike into a longer-term trend.

You need to be on the continuous lookout for likely avalanches. This is comparable to a meteorologist looking at factors, such as the amount of snow on the ground, to predict snow avalanches.

The open positions of traders around the world are the equivalent of the snow on the ground. For a few markets, there are services that publish information on position information, examples are http://fxtradeinfocenter.oanda.com/orderbook/open_orders_and_positions or from the CME, the data of open interest. From the price action, you should try to independently infer how market participants are positioned.

Passive herding:
how traders get locked into the same position

A characteristic trader behaviour is that traders tend to hold on to losing positions but to take profits early with winning positions. Whenever price trends occur, traders on the right side of the trend closeout their positions, whereas the traders with the losing positions stick to their positions. As the trend progresses, the ratio of trend followers and counter-trend traders tends to become ever more one sided, and eventually 70 to 80 percent of the open positions are counter-trend. This is passive herding; the traders opened their positions for different reasons, some of them were following technical indicators, others followed some fundamental signal, but they now have something in common – they sit on losing positions with an unrealized loss and the likelihood of a margin call, if the trend continues.

Whenever positions of traders are very much one-sided with only long or short positions, the likelihood of a small price spike triggering a cascade of closeouts increases. This is typically the case when the price has reached a new extreme. In this situation, traders need to be careful and ready themselves for a likely avalanche due to cascading margin calls.

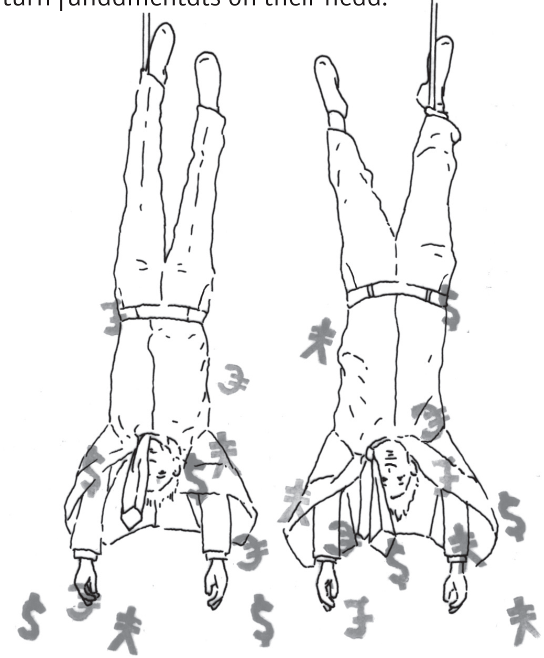
The herding behaviour is even stronger when the market has been trending strongly and then rapidly changes its direction. Many traders will then have the false expectation that the trend will just continue. They go on opening positions in the direction of the previous trend oblivious to the fact that the sign of the trend has changed. They are reluctant to realize losses and thus there is strong passive herding. This is particularly dangerous; a minor event would be sufficient to trigger a particularly violent cascade of margin calls affecting all the traders who have been herding. The price will then shoot off in the new direction starting a particularly strong new trend.

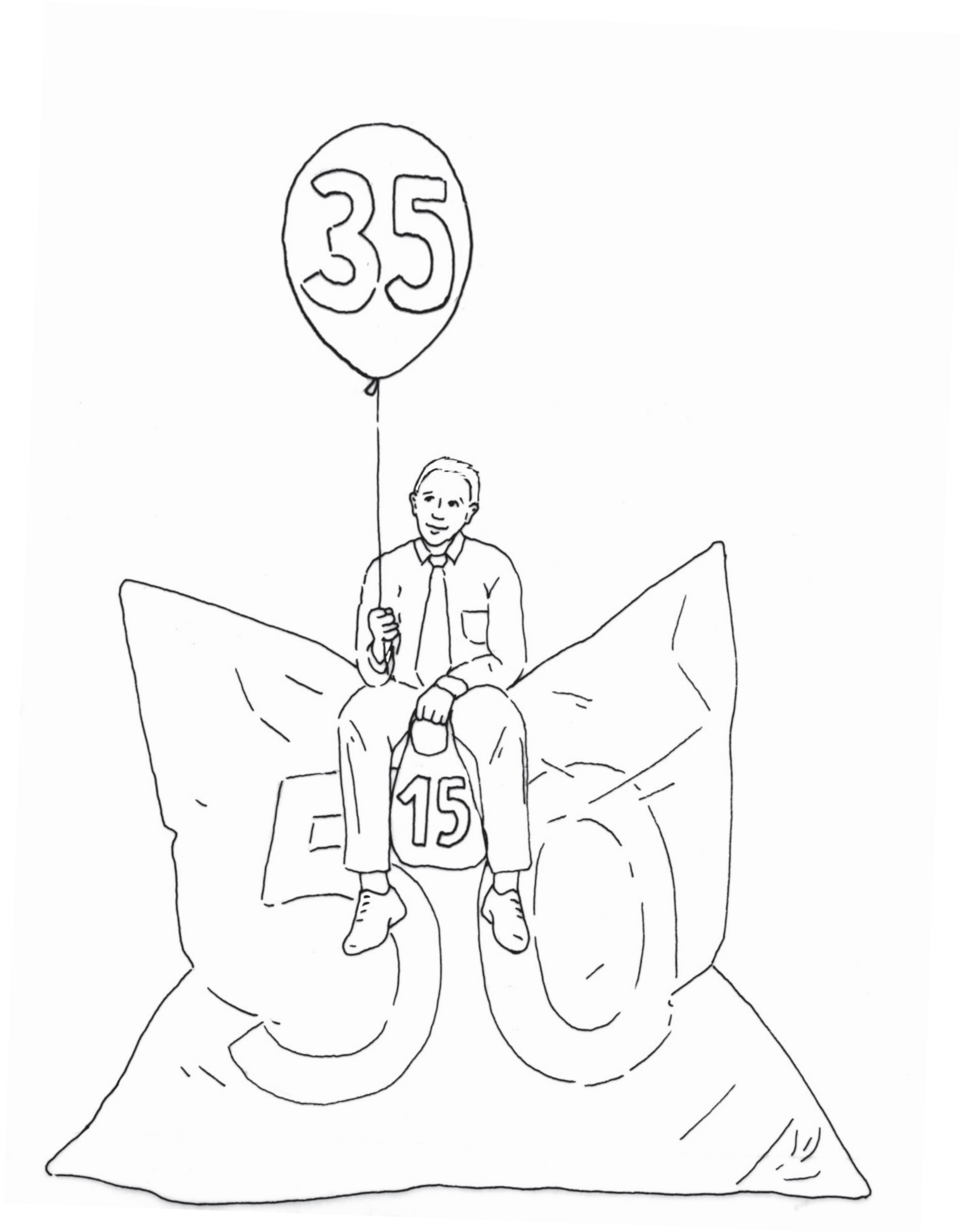
Daily, weekly seasonality powers avalanches

There are other factors that need to be considered to determine the likelihood of a price avalanche: at the end of each day, when US trading comes to a close, traders want to get home and close out their open positions. They will first tend to close out profitable positions, so the current trend will partly reverse itself, but this price reversal is relatively small because profit taking is not time critical and thus spread out over time. Losing positions will be closed out at the very last moment; until the end of the day, traders hope that the trend will reverse. If this is not the case, then shortly before 5 PM EST, traders with unrealized losses will start to close their positions – their positions are necessarily counter-trend, thus closure of those positions will fuel the existing price trend. So trends tend to accelerate at the end of the day, which then can trigger stop losses with traders who did not intend to close, thus providing a further price boost. The same phenomenon is even more pronounced on Friday afternoons. Traders do not want to have open positions over the weekend; they want to relax and not worry about losing money. So many traders tend to close out open positions on Friday afternoon. This leads to an acceleration of the price trend on Fridays. Frequently, the price trend persists until Monday morning, and in this sense, the new week only starts in the latter part of Monday. Again, the same closeout phe nomenon applies for end of month or end of quarter price action. If end of month is on a Friday, then the end of week and end of month effect coincide and thus multiply with each other.

Cascading margin calls turn fundamentals upside down

Especially when fundamental factors seem to favour a particular direction, the likelihood of cascading margin calls increases. Traders are confident that the fundamental factors will prevail and establish aggressive positions. They will even, more so than usual, underestimate the likelihood of price spikes in the opposite direction. If a price spike then materializes, they get margin calls and have to liquidate their positions. As this happens, this will further amplify the price move in the opposite direction of the fundamentals and trigger margin calls with even more fundamental traders forcing them to closeout their positions and further fuelling the price move. The fundamental traders get decimated. By realizing losses, their equity shrinks and thus their firing power to open positions is reduced. The overall balance of traders tilts away from the fundamentals, and traders with the 'opposite' view win the day. As this happens, the price moves counter-fundamentals, providing an even bigger incentive to bet on the fundamentals creating a trap for fundamental traders who continue to bet on fundamentals and lose a load full of money. The price moves in the opposite direction of the fundamentals, not just for a few hours, but also for days, weeks, months or even years. You need to be on your guard and to always keep in mind that cascading margin calls can turn fundamentals on their head.





Importance of contingency reserve

There is no way to correctly anticipate the behaviour of all traders around the world. For this reason, we need at all times to be ready for an unexpected price spike that may trigger an avalanche of orders turning a seemingly innocuous price spike into a trend that can dominate the market for a brief moment in time or for much longer; this may last one day, one week or many months.
To prevent being caught by such an avalanche, the trader should maintain a large cash reserve of free margin capital. I recommend that you set aside 50% trading capital as a reserve to offset unrealized losses and as a cushion for unforeseen events. The remaining capital may be used as active margin capital to fund positions. You need to deploy this capital wisely. A small percentage, such as 15% of the capital, should be used to fund current positions; the remaining 35% can be used as a reserve to increase the position under special circumstances and to improve the price average to turn a losing position into a profitable trade.

As a disclaimer, I have proposed some percentage numbers of how to split the capital; the concrete numbers very much depend on the trading style and are therefore indicative only.

How to measure volatility?

To size positions and budget for unrealized losses, to set profit targets and stop losses, you need a good sense of volatility. The simplest method is to measure the price range between the highs and lows for intervals of one hour, one day, one week and one month. You do this by scrolling back in time by one month or even one to two years to get a sense of the likely size of the price ranges between the highs and lows for these different intervals. The highs and lows are the bounds where margin calls are triggered. You should use the price range between the high and low to calibrate the key parameters of your trading strategy.

Diversification

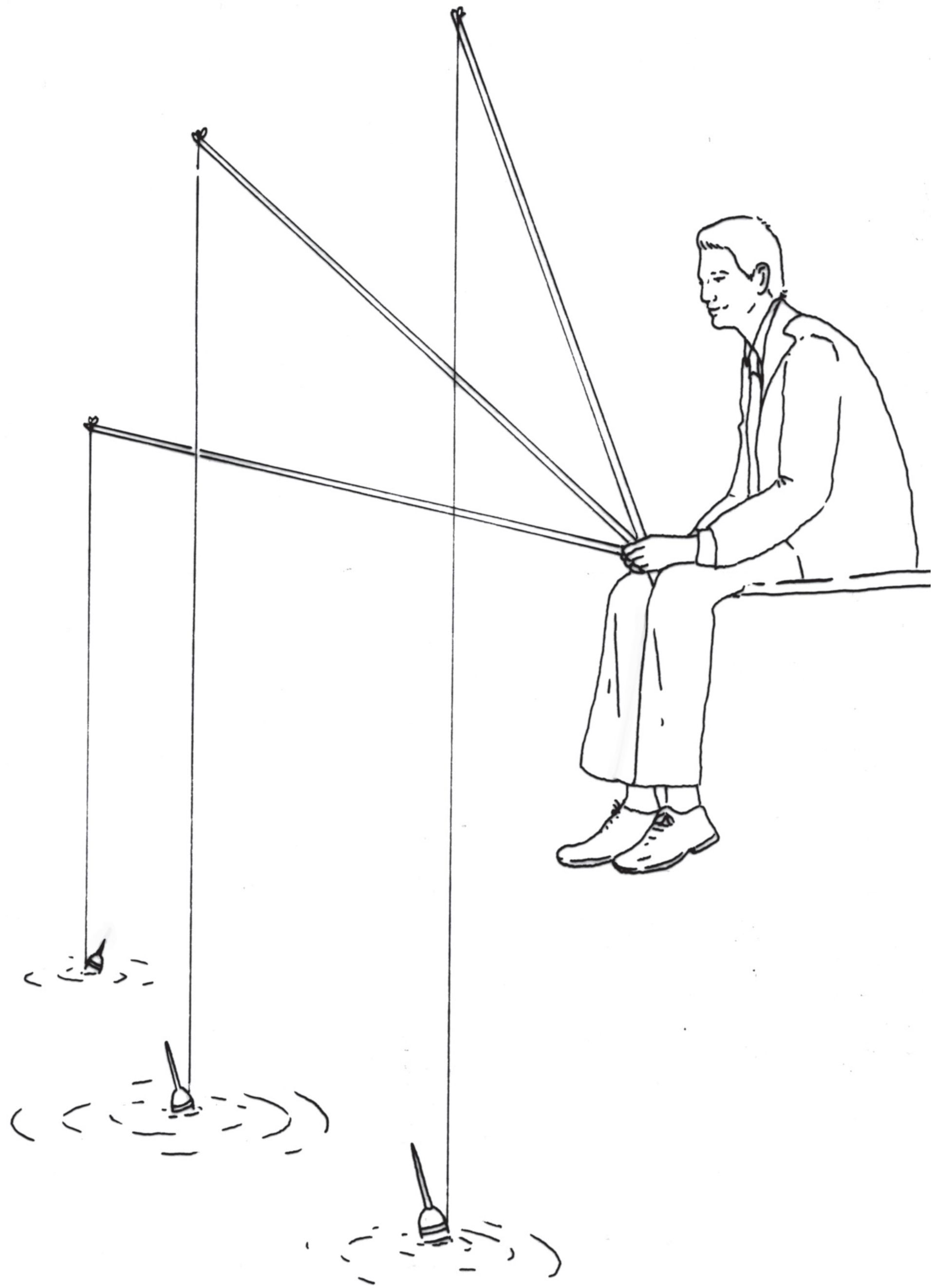
There is no such thing as perfect foresight; an unexpected price spike due to a large market order or news event can occur at any time. You need to diversify your risk and trade not just one, but at least two or three ideas at the same time. It is through diversification that you can improve your risk profile – when one trading idea is profitable, the other runs a loss and vice versa. Overall your performance is smoother and, more importantly, this approach reduces the pressure to perform. You are then more relaxed and less emotional in managing the exposure of your trades.

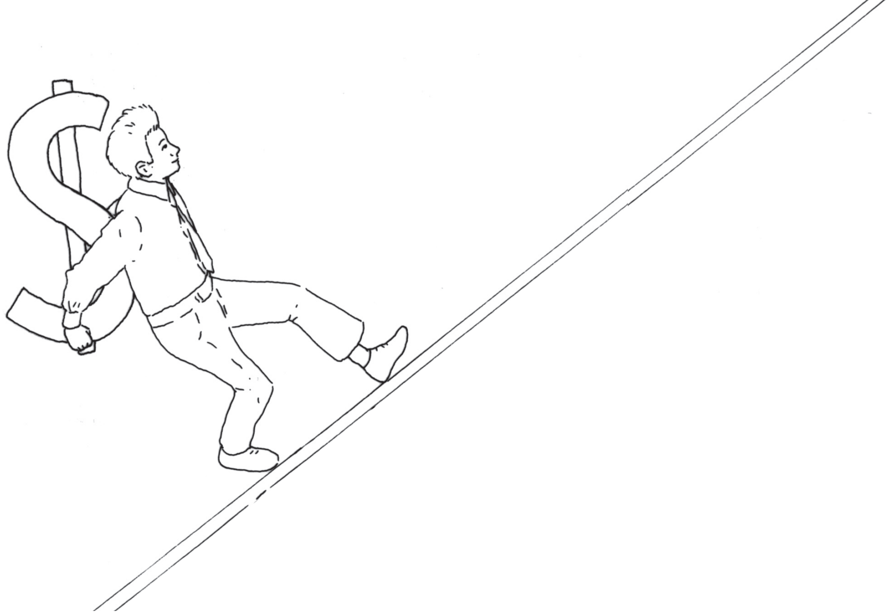
How to size positions?

Whatever your underlying trading ideas are, the method of executing an idea and realizing a profit is always quite similar. First, you should define a budget in terms of capital that you intend to commit to the trading idea. It is best to divide the budget into targeted position size and additional capacity that you intend to use in case the market turns against you. I advise that the targeted position size should be only one third of the overall budget of the trading idea – large two thirds are additional capacity that is kept in reserve.

How to open positions?

When you open your position based on your trading idea, you should split the initial trade into three tranches because there is no way to know the optimal timing for opening a trade. Thus, it is better to diversify this risk into three opening trades. Define a time period in which you want to open your position, and specify the price reversals at which you will be buying. To open your position on price reversals is not penny pinching; your entry price determines the price level at which your position turns into a profit – if you are not careful, you can open your position at a worse price and will have to stay in your position longer and thus increase your risk. At all frequencies there are imbalances of supply and demand, which cause temporary price reversals; use them to your advantage. If the price zooms off and you did not get a chance to buy, do not worry as the price will most likely suddenly revert and you will have another chance; if not, then there are many other opportunities.





How to manage a trade and turn a losing position into a profit?

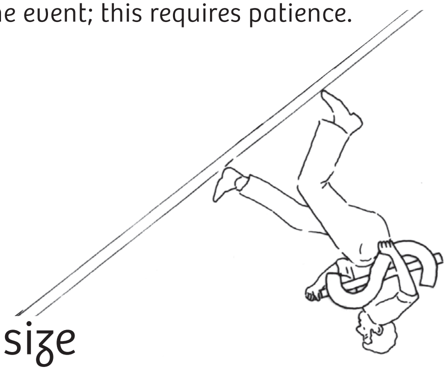
I have explained that you need to continuously lookout for unforeseen events that can trigger a cascade of margin calls. When such a cascade occurs, any trade can turn into a losing position, where the entry price is so far from the current price level that the profit target is out of reach.

A losing position can be turned into a winning trade by turning the negative development into a positive and taking advantage of the new price level to add to the existing position and thus improving the price average of the whole position. In so doing, you shorten the distance between price average and current price, thus increasing the likelihood of a price bounce that is sufficiently large to turn your position into a profit. If you double the size of your position, you halve the distance between the current price and the original average price of the position and increase the likelihood of a price rebound by a factor of four. As a word of caution, since you also double your risk, you should only do so when there is a high likelihood of a price rebound.

Why prices revert

In liquid financial markets, up to 98% of all the trading is based on speculative positions and the hedging of those positions. These positions, being speculative, are temporary, and any opening trade will need to be closed. The closing trade has the effect of inducing a price reversal. Due to the duality of the opening and the closing trade, the price movements are never fully one sided. At some stage, sooner or later, positions will be closed and then the price rebounds will occur.

You can use these reversals to turn a losing trade into a winning position by increasing the position size and improving the average price of your position. In so doing, a smaller price rebound is required to turn your losing position into a profit. There are, however, big disadvantages to this strategy; by increasing your position, you also increase your risk and, if the price continues in the unfavourable direction, your losses will mount making things worse. It is thus important that you wait a long time before increasing your position – you need to wait for the extreme event; this requires patience.



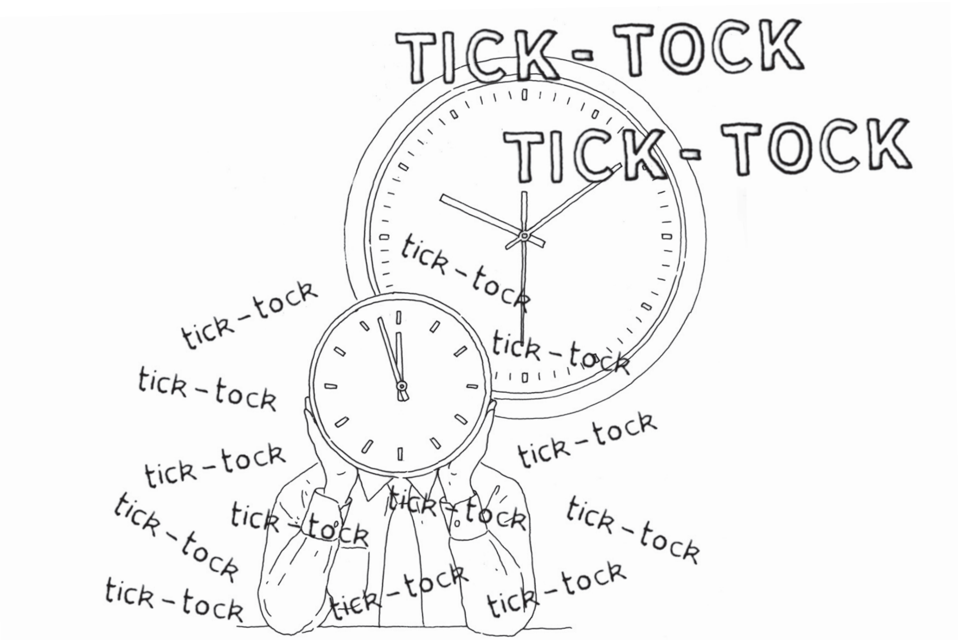
Reducing position size

If you have increased your position size to improve the average price of your position, you should reduce the size of your position at the next opportunity of a price rebound. Increasing the position size is like accelerating a car when in danger. Just as in driving it is important to slow down as soon you have passed the danger zone, you need to free up capital and reduce your position size. If you free up margin capital, you can later increase your position when the price falls back again. By carefully managing the position size during the ups and downs in the price, you earn an incremental profit that turns a losing position into a winning trade.

Smoke and mirrors

Human beings do not find it easy to correctly identify price extremes. We typically interpret relatively small price moves as extremes, where the moves are actually only moderately larger than average. This deficiency is even more pronounced when a trader faces mounting losses. When under pressure, the trader's internal clock ticks faster and he poles the market price at a higher frequency. Time will seem to move more slowly; minutes will feel like hours and days like weeks. Under these circumstances, the trader's natural instinct is to time his trades in terms of his internal clock, but this is wrong. Unaware, he will focus on smaller-scale price movements that are out of step with his overall trading strategy. He will decide to increase his bet too early. There might be a bounce back, but this will not be enough for him to exit his position with a profit. If the price resumes its slide, the trader will accumulate losses even faster than before because of the larger position.

You need to take into account that your sense of timing is skewed when under pressure: you need to lean back and slow your natural instinct and wait for a price overshoot that is in sync with your regular trading frequency.



Trader deep freeze

The biggest danger for a trader is the so-called 'deep freeze' mode: a trader, who is close to a margin call, freezes up and does not have the mental energy to take decisions and blindly hopes for a price rebound. He can be lucky once, twice or three times, but not on an ongoing basis. Similar to a mouse that is hunted by a cat and cannot move for fright, the same happens to the trader. It is important to pre-empt this situation. The trader has to set himself a stop loss, where he will get out of his position, whatever may happen. Ideally, the stop loss is never triggered and he is able to manoeuvre out of any unrealized loss by increasing and decreasing his position size in response to the local highs and lows of the market.

How to set the stop loss?

As soon as you have started to use your contingency reserve, you are advised to take pro-active steps to reduce exposure, be it through a partial close-out or a fully-fledged stop loss. It is preferable to do a partial closeout and then wait for a rebound to reduce the position even more. Set your stop loss at a level where you expect a price avalanche to be triggered. Price avalanches tend to be bigger than expected, so set your stop as close to the start of an avalanche as possible. You save yourself a lot of money if you cut your losses early; so be pro-active and do not fuss over spilled milk.

How to take profit?

To make money, profit taking is as important as managing losses. Do not get carried away with the success of your trade; you need to realize a profit. Set yourself a profit objective at the start, and do not change the plan. All too frequently, traders waver and fail to take profit when their profit target has been reached. They are then surprised to see their profits vanish over night and then need to scramble to closeout at break even. Another common mistake is the following: traders with too large positions need to reduce exposure to free up margin capital. Typically, they close the winning position; this is wrong, keep those positions open. You should instead reduce or close your losing positions. As soon as your profitable trades have reached their profit objective you close them and re-establish the positions that you had to reduce or close. This is a better strategy because your losing trades may be caught in an avalanche, whereas your winning trades may be lucky and surf on an avalanche.

Summary:

Trading is not easy. Price movements are fractal with lots of price exaggerations in both directions making it difficult to keep things in perspective. You should remember that you have time and that there are lots of profitable opportunities, so do not feel rushed. Be selective in choosing your strategy. There will be good and bad days. Market movements are difficult to predict because cascading margin calls can turn fundamentals upside down, so make sure that you have a low exposure and can stomach adverse price movements. At all cost, manage your exposure and be pro-active. If you are in a losing position, try to use the many up and down price moves to improve your average price; always protect yourself with a stop loss. This is the best recipe to prevent trader deep freeze. Finally, have fun, but never risk more than you can afford to lose.