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Paul Leo & Peter Temple



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MULTIPLE TIME FRAME BASICS

Multiple time frame analysis does not crop up too often in the standard textbooks on technical trading analysis. This is all the more reason to have a look at the ideas behind it in some detail.

First, we need to understand some of the basics, starting with what we mean by a time frame. A time frame in trading is defined by the time axis of the chart. The basic unit is the bar on a chart. A bar defines the high, low, and closing value for the period in question. So a bar chart can be drawn that consists of five-minute periods, or hourly periods, or daily, weekly, or monthly ones. It simply depends on what type of trading we want to do and the detail and quality of the data we are able to afford.

One of the foremost exponents of time frame analysis is Charles Drummond. It has been said that Drummond arrived at the importance of multiple time frame analysis independently of other advocates of its use. It is one of the three major tools of his analysis method, known as Drummond Geometry.

According to an article in the magazine *Chartpoint* published in May/June 2002, Charles Drummond – the Canadian trader and deviser of the theoretical basis behind the system covered in the rest of this chapter – is “a very private person.” The result is that very little is known of him, other than the fact that he has been trading successfully in a variety of markets for 30 years.

In an interview with the authors (see later in this chapter for the full interview), Ted Hearne, a business partner and co-author working with Drummond for the past seven years, revealed how Drummond came to his early insights. The revelation came, so Hearne claims, after Drummond had been searching for a simple method that would quickly reveal a trend and show it moving in a straight line.

This is the basic building block of the Drummond approach, although other elements have been added one-by-one over the years in a methodical and logical manner, one building block on top of the last, until the whole system stands as a comprehensive body of knowledge.

Hearne says that Drummond is a practical, pragmatic man with a tenacious mind and an inexhaustible capacity for work. He has proven to be one of the 20th century’s most successful individual traders, and his work is solidly grounded in the practical and empirical.

One of his students once said that Drummond is to technical analysis what Einstein was to physics, and many traders who use his methods would agree. His work is not as widely known as it might be, as it has been kept under wraps for decades, but this is slowly beginning to change.



SOFTWARE

PLdot — Ted Hearne & Associates

According to Ted Hearne, Drummond Geometry is a sophisticated method of predicting support and resistance in the short-term future. This is done with analysis using several time frames.

Once this has been accomplished, the trader evaluates the market movement in each time frame, and can make a prediction as to the strength or weakness of support and resistance. This gives the direction. Once the trader knows the most likely future direction, and understands where support and resistance are, then the market is very, very tradable.

The tools that are used are created from simple two-bar trend lines and from three-period moving averages. All of the tools are projected into the short-term future. This results in a matrix that is simplicity itself, though it does take some getting used to, as it must be simultaneously applied to multiple time frames.

Hearne said that an experienced discretionary trader following Drummond Geometry should be able to make seven out of 10 decisions correctly. He has done extensive walk-forward testing using many different trade plans, and these are publicly disclosed in Drummond's teaching materials.

The teaching materials that Drummond and his colleague market to "serious students of the markets" consist of 30 lessons in five CDs and a trading system that runs on the widely used Tradestation charting software. Students are required to sign a non-disclosure form.

The key elements of the Drummond method include the combination of the following three basic tools and techniques:

- a series of short-term moving averages
- short-term trend lines
- multiple time-period overlays.

The short-term moving average is based on the last three price bars and plotted forward to the next bar as a dot or line. Hence, the name PLdot, which stands for Point and Line.

Figure 9.2 shows the PLdot plot of the Hang Seng Index. The PLdot can be used to determine whether the market is in a congestion phase or trending. When in congestion the PLdot moves horizontally, and when trending it moves in a straight line up or down.

The second fundamental element is the use of short-term, two-bar trend lines. Like the PLdot, these short-term trend lines are projected into the future, where they indicate points of interest on the next bar, the future bar that has yet to trade. These so-called Drummond Lines indicate areas of "energy termination". These are where the market is likely to stop its movement as shown in Figure 9.3. In theory these should provide points at which to enter and exit from trades with considerable confidence.

The coordination of support and resistance in different time frames is the third major tool of Drummond Geometry. It is perhaps Charles Drummond's most important contribution to the field of technical analysis.

It is in fact this concept that determines the success of trading using the Drummond system. The essence of it is that it is not simply enough to know, when trading, where the support and resistance levels are, but how strong or weak they are. This sounds as though it should be easy to determine, but devising a system that works and is easy to use in a trading scenario has been the challenge for Drummond and Hearne.

As Hearne reiterates, "Knowing when support or resistance is strong and when it will be weak is the name of the game in trading. Once a trader can reliably make that determination, then it is possible to trade with much greater confidence."

FIGURE 9.2 Hang Seng Index

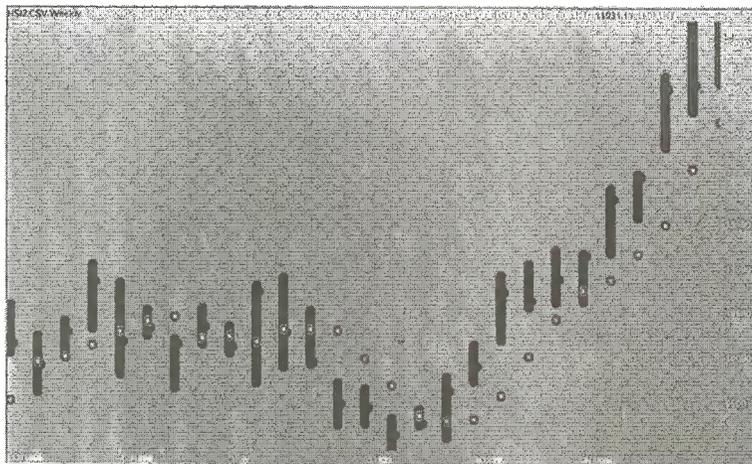
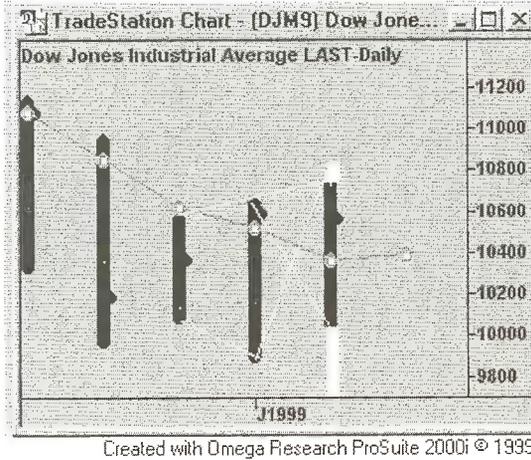


FIGURE 9.3 Two-bar trend lines on the Dow Jones Industrial Average

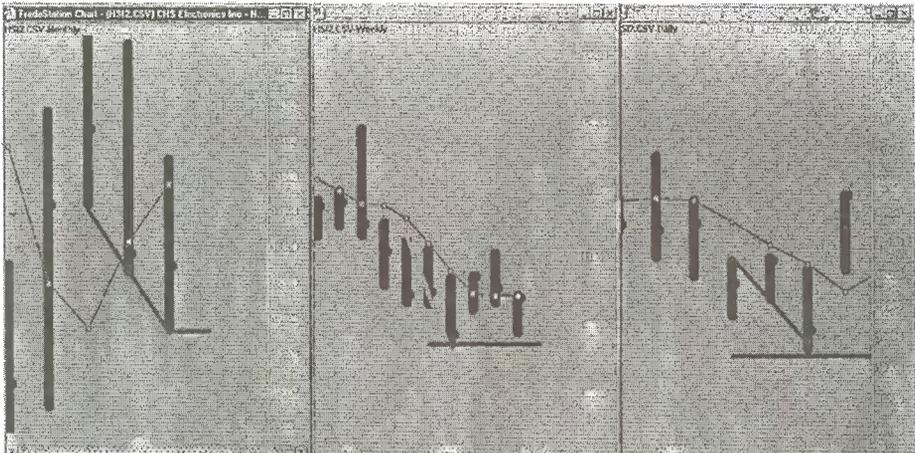


A single time frame is unable to tell whether a support or resistance will hold. It is only when you can align the support and resistance areas of various time frames that you can determine whether each will reinforce the other.

This is shown in Figure 9.4.

According to Hearne, the trader must first decide what he or she is trying to do. Only when this has been decided can the arrangement of time frames used be determined. If the trader is trying to take as much as is possible out of a weekly bar (that is, to sell the weekly high and buy the weekly low), then the trader has, in Drummond parlance, a "weekly focus" and the weekly chart would be the trader's "focus time-period." The focus time frame then determines the bar chart on which the trader is trying to place his or her trades.

FIGURE 9.4 Multiple time frames of the Hang Seng Index



Second, to see the market in context, the trader would then select a longer (“higher”) time period. If the focus time period is daily, then the higher time period would be weekly. If the focus time period is weekly, then the higher time period would be monthly and so on.

Third, the trader would select a shorter (or “lower”) time frame. The lower time frame would be used to monitor the market at key decision points and to determine at the earliest possible moment exactly what is occurring in those areas where the market is encountering significant support or resistance levels. This echoes the approach outlined elsewhere in this book by other software developers and traders that the key to successful trading is that the time period being traded should not be viewed in isolation.



INTERVIEW – TED HEARNE

We interviewed Drummond’s long-time associate Ted Hearne in the course of researching this chapter, and his views and reflections on the Drummond methods and his role in their development and dissemination are given in the following Q&A session.

Q Please give some brief background information about yourself and tell us how long you have been in the market.

A I’ve had several careers, and came to the markets about 20 years ago. In my early years I worked as an actor, as a film critic and foreign correspondent, a freelance writer, and a communications officer. Eventually I founded a national communications firm and worked in that field for a number of years.

But I was always drawn to the financial markets and liked to read different approaches to investing. At one time I was considered a “gold bug,” and I liked to collect gold coins and the like. So it was natural that I started tracking the price changes of gold, and then the price of other commodities, and became interested in technical analysis and trading. Eventually I became a floor trader for a short period, and began my serious study of technical analysis about 15 years ago.

I have always thought that my varied background gave me some flexibility of outlook and the ability to see things from many different points of view. When I was a freelance writer I found myself in hundreds of different environments and was exposed to many different cultures, businesses, professions, activities, and locations around the world. I probably have interviewed thousands of people in considerable

depth, talking to them about their passions and special expertise. It was perhaps a good foundation for my market-related studies; the market rewards broad vision and common sense, and punishes you if you fall in love with your own opinions.

Q What is your view on pure system trading? Can it work if you do it right? Or is there more to successful trading than just the system? What causes failures in trading, even with the best system in the world?

A The biggest problem with system trading is the human element. Our very natures are hard-wired to do the wrong thing when trading. That can be very difficult to go against. The biggest difficulty with our system – and I believe with any system – is getting traders to take the signals the system generates as they occur, without hesitation or delay.

Q Why is that the case?

A It's human nature. We humans are social animals. We have an innate need to be with others and we look to the responses and reactions of others about us to validate our actions. It is a sort of herd instinct; in fact, I believe humans have more in common with herd animals than is conventionally thought to be the case. This leads to uncertainty and delay, as traders wait for confirmation and reassurance before they make a move. They all wait until they can see the obvious signs at the same time. For most traders this means that the best opportunities have already evaporated.

To my mind it is beyond question that human behavior in the financial marketplace is an exercise in mass behavior and that human behavior results in large numbers of people doing the same thing at the same time – sometimes in panic mode, sometimes more deliberately, but always as a crowd.

There will be those few pioneers that forge ahead, and there will be the laggards that join the crowd last, but the bulk of people act the same way at the same time. This leads to bubbles, to crashes, and to prices that move far above or below what is sensible in terms of value.

Q But this behaviour must create opportunities for traders?

A It does, and the systems and technical analysis methods we use can identify these opportunities with great accuracy. But to take advantage of these transient opportunities, traders must also be trained to deny their natural instincts and take action independently of the crowd. This difficulty in mastering our own human emotion is what makes pure,

computerized system trading so attractive, because the machine has no emotion and therefore will never distort or ignore a signal.

Q Other than the Drummond system, whose other system impresses you most and why?

A I am skeptical about most conventional technical analysis but I do have some interest in Market Profile. The bell-shaped curve that is the basis of Market Profile is based on a reality that makes sense to me; I like the concept of fair and unfair price, and the recognition that there are occasions of risk-free exposure when a trader can take a position and have a high probability of success. However, I have not yet seen a Market Profile application that successfully incorporates the dynamics of different time frames. But I may not be up on the most current work in that area.

Q What do you look for in a trading system?

A Any trading system must be profitable; otherwise, what is the purpose of all this messing about? But beyond profitability we look for robustness. A robust system is one that avoids curve-fitting, and for which the results will hold up under many different circumstances. If you have something that works well in soybeans and pork-bellies, and platinum (which jump around a lot), as well as in Eurodollars (which have smaller moves), then your chances of continued success are higher. Similarly, we look for systems that produce valid results in many different time frames: for hourly, daily, weekly, monthly, and even yearly focused traders.

Q What would determine if the system is good or bad?

A It's the outcomes, of course. A good system has robustness, profitability, and small drawdowns and few drawdowns. In short, it can mimic the insight and actions of a good human trader, and lifts the burden of watching and monitoring off his or her shoulders.

Q How do you evaluate a system?

A We evaluate systems according to all of the above criteria. Most important are the tests that tell us that the system is not curve-fitted, and that it is based on fundamental characteristics of the market and not on

the specific, non-reproducing characteristics of the particular period that was used for the data upon which the system was based.

Most systems based on sophisticated statistical analysis are susceptible to curve-fitting. The ability of modern technical analysis software to optimize results by changing small variables in increments until the results look good is highly dangerous and is usually the cause of systems falling apart. The tools available these days are snazzy and efficient and seductive. But they are also dangerous and should be approached with great caution.

Q What in your view causes systems to fail?

A Most systems usually fail because of one of two causes. Either it's the effect of curve-fitting, or it's because of human psychology.

If a system is based on limited and inadequate observation of the market, and therefore only takes into account a few elements that are present in the current market activity, it will most likely fail.

If a system cannot handle major market upsets it will fail because adverse events and endogenous shocks do exist and will continue to exist.

If a system does not take into consideration the relationship of one time frame to another, then it will fail.

People cause systems to fail when they cannot execute, or if they have inadequate capital, or if their money management rules are not up to snuff, or if any of dozens of negative elements in personal history and personal psychology are operating.

The market is a tough taskmaster. The really good traders have the ability to switch on completely stone-cold logic and objectivity when necessary, and can stand apart from the crowd in a sober, non-emotional manner. This can be a difficult skill to learn, but if traders don't learn it, then they are likely to experience some hard times.

Q What projects are you working on at present?

A We are presently implementing a full computerization of our Drummond Geometry system. This is a system that currently is being successfully used by discretionary traders. Because the approach to the market inherent in the Drummond Geometry is rooted in fundamental aspects of human nature as expressed in financial activity, the basic system rules do not change from market to market or from year to year.

Q What systems were you using before Drummond Geometry?

A I had a conventional education in conventional technical analysis with conventional results. That's to say they weren't that outstanding. But when I saw how effective Drummond Geometry could be as it projected out the market's support and resistance, and coordinated different time frames, then the lights came on and I began to focus on that methodology.

Q What prompted you to Drummond Geometry? What were you looking for?

A There is no mystery here. I came to Drummond's methodology in search of more accurate and more effective understanding of the markets.

The big advantage that our current work will give us is that a properly constructed, fully computerized system would help traders increase their personal freedom, and spend less time looking at the screen, less time monitoring. A human can do some things well, far better than a machine. But the machine is clearly superior in other aspects. Our job as system developers is to try and take advantage of the strengths of the two major inputs – human intelligence and the power of the machine.

Think about the strength of a computer. It is tireless, indefatigable, and has immense amounts of computing power. It can watch for a complex set of rules to be met, with hundreds of calculations and subsets and alternative scenarios, each involving thousands of calculations. If you have a branching decision tree, that tree can be very high and have many different branches, too many for traders to hold in their minds. And machines never get tired, never have to break for lunch, never get headaches, never fight with their spouses, and never miss the bus or stub their toes getting out of bed in the morning. So machines have some distinct advantages.

On the other hand, the computer cannot do all that the human mind can do; in fact, it falls far short in many areas. When we try to make the computer imitate the mind we sometimes stumble.

I am reminded of the Asian board game, "Go." Perhaps you know it. It is played on a simple 19-by-19 square board with black and white stones. For many years this ancient game has stymied some of the world's finest computer programmers, who have tried to teach the computer to play the game.

We know that computers have been programmed to play the game of chess. There was the well-known IBM "Deep Blue" computer that was able to match and even beat the world's greatest chess player. When the computer played a chess game to a master level, calculating each possible move to a level of thirty moves ahead, Deep Blue could apply

all its immense computing power and come up with the proper move in about seven minutes.

But when skilled programmers try to get the computer to play Go, they fail miserably. Even an amateur Go player can easily defeat the computer. In fact, if a computer of the same size and speed of the IBM Deep Blue computer were to play Go with the same level of calculations that it applied to the world championship chess programs, it would take 17 years to calculate the possibility for *each* move and make a decision ... and even then it would have a high probability of being wrong. By contrast, an average human Go player can make a decision about a move in only a few minutes, and that move will almost always be able to beat the machine.

So what is going on here? It is simply that the human mind is vastly superior to the computer in pattern recognition. The human mind can categorize patterns and sort them out to make inductive conclusions easily; the computer, which uses brute force to solve problems, cannot do this nearly as well.

I believe that the stock market is a phenomenon many times more complex than the game of Go. Even the most complex supercomputer cannot handle the analysis and prediction of all market patterns by brute force. So, therefore, the question of having the right model comes into play, and that is the special skill of the human brain. If we can describe the *correct model* of market behavior, and then once we have the correct model we ask the computer to follow only the rules associated with that model, then we have an excellent chance of success.

Teaching the machine how to see what we can easily see as traders is our most challenging task.

Q How different is the methodology now from when it was first developed?

A Drummond Geometry is a well-established method of technical analysis that has been developed over 30 or 40 years by the Canadian trader Charles Drummond. Over time there have been many enhancements that have been added to the methodology, but the basics have always included a sophisticated method of determining support and resistance, the use of several three-period moving averages, and the coordination of support and resistance in different time periods. It is this last element that I consider the most powerful and the one that contributes the most to the overall results.

Drummond's nine books trace the evolution of the methodology, and in the last seven years Drummond and I have written a series of electronic "lessons" that explain the methods for those who wish to learn the approach.

Q What are the challenges that you face in developing your system and how can you overcome them?

A The biggest challenge is to define and codify in machine language what the expert trader sees at a glance. This can be challenging because traders may not be conscious of all of the market cues and characteristics that they see. How do we overcome that obstacle? Well, through creative thinking about new ways to ask the machine to recognize the patterns and to create decision trees for the trades. It's a matter of isolating what is important and presenting it to the machine in the proper order.

Q What instruments do you trade with your system?

A Drummond Geometry is applicable to any freely traded market. It has been successfully applied to shares, bonds, futures, commodities, and currencies. The choice of instrument is a matter of personal preference rather than the characteristics of our system.

Q Could you describe the profile of a typical user of your system?

A The methodology contains a range of tools and there are many different styles of trading that are possible, so it can be adapted to many different personalities. Typical users are market professionals in their forties or fifties who have tried many other approaches to the market and are well aware of the short-comings of conventional technical analysis. They generally come to Drummond Geometry after experiencing a lot of frustration with other methods.

Q How easy is it to use?

A For Drummond Geometry traders the major complicating element is one of personal psychology. Traders need to understand the principles of the system first. In other words, that the higher time period drives the direction, the lower time period provides a monitoring tool, displays the trigger, and provides the confirmation of what is happening. When traders understand this, then the rest of the challenge is to understand their own selves and the psychology of their trading. Emotions cause many traders to stumble and to deliver results that are less than could otherwise be achieved.

Q What do you consider to be the most important feature of your system?

A The most important aspect of it is the understanding of the time period interrelationship. Higher time period support and resistance can reinforce or detract from what we anticipate in the lower time period. This makes a huge difference in the bottom-line results.

Q What would you like to improve further in your system?

A We are currently working on computerization of time period coordination issues. They are somewhat daunting since there is no software currently in existence that does what we need it to do. The result is that we are creating some of our own and adapting current products to our special uses. By doing this we hope we will be able to make the kind of calculations and monitoring that will be effective for fully automated trading.

Let me give you an example. TradeStation is a wonderful product (and we have had a partnership with Omega over many years), but if you ask it simultaneously to monitor a chart in a yearly, quarterly, monthly, weekly, daily, and intraday time frames, and follow a few dozen variables for each of these time frames, and update them all tick by tick, and implement a strategy that ties them all together and produces automated trade signals and back-test these signals on data extending back 10 or 20 years – well, the software just rolls over and gives up. The demands this approach makes are simply too high for it to accomplish what we need. So we are left with the task of developing our own calculation engines and modifying TradeStation so that it can handle this kind of data-crunching.

My colleagues and I are doing this and have made substantial progress toward this goal. But the process is not complete as yet, and so we lack the kind of industry-standard test results that are easily served up by more conventional methods.

Q Any other ideas or thoughts you would like to share with us?

A The world, or a large part of it, likes to be told what to do. Buy here and sell there. Vote this way or vote that way. It is the nature of mankind to wish for leadership, for certainty, for guaranteed profit and reward, for a guarantee against loss.

True independence, true freedom, and true reward in this field come only from doing the hard work of personally researching the markets, and understanding one's own personality. Ultimately, building a system brings you face to face with the core elements of awareness and personal psychology that lie at the heart of success in the markets.