Introduction

Ever since the emergence of modern finance theory, the followers of technical analysis have found themselves marginalized by the financial establishment and held at bay by fortress walls built on misunderstanding and contempt; misunderstanding, since the technical jargon of head-and-shoulders, wedges, and pennants does not resonate with minds steeped in physics and statistics; contempt, for the fervent adherents of modern finance reject the mere possibility of patterns in market prices. Such a segregative state of affairs hints at the striking dichotomy which permeates the financial world. On the one hand, academics tend to embrace the efficient markets hypothesis which, roughly speaking, stipulates that markets are unpredictable, in the sense that there is no way to forecast future prices based on previous ones and thereby make a profit. The efficient markets hypothesis was shaped in the writings of Eugene Fama and Paul Samuelson in the 1960s, and despite the recent proposals of alternative hypotheses, it remains deeply ingrained in the culture of academic finance.

This stands in sharp contrast with technical analysis, which attempts to divine market’s direction based on past prices. Often and quite controversially this is done by searching with the naked eye for certain patterns in price histories that are believed to embody the prime mover of all market action: crowd psychology. For example, a sequence of successively higher highs and lower lows which traces the so-called “triangle bottom” pattern in the price data is usually interpreted by technicians as a manifestation of strengthening confidence punctuated by subsiding terror, and hence as the presage of an uptrend. Perhaps surprisingly, technicians in some cases do appear to make consistent profits that cannot be attributed to chance alone.

In the light of this dichotomy, the rift between academics and technicians is not quick to heal, but may require the two communities to take a careful look at the other. In this article we present our insights from one exploration of technical analysis, spanning past, present, and future. First, to place technical analysis in context, we conduct a historical study of its evolution through spanning past, present, and future. First, to place technical analysis in context, we conduct a historical study of its evolution through time and across cultures. Second, we deal with the current lack of formalisation of technical analysis: there is no complete agreement on what technical analysis is, with many texts only partially overlapping on the methodologies to be employed. Consequently, our second main endeavour is to understand fully what present-day technical analysis consists of, and to this end we conduct interviews with its current leading practitioners. Finally, we consider the future of technical analysis, which in our view will move away from ambiguous heuristics towards formally defined indicators and dynamic strategies, capturing the ever-changing nature of financial markets. In the rest of this article we discuss these three perspectives in turn, each the subject of a forthcoming book co-authored with Andrew Lo.

The historical context of technical analysis

That human nature will never change and technical analysis therefore never become obsolete is often heard from seasoned technicians. But if fear and greed have always been the main drivers of supply and demand in the markets, then technical analysis that measures supply/demand imbalances should have spread its web of roots deep in the realms of history and widely across civilizations. Historical evidence suggests that this indeed is the case. Arguably as old as the markets themselves, technical analysis dates back to the ancient Babylon of the 7th century B.C. This evidence comes from a set of price diaries that survived until our time, where the prices of the same six commodities such as barley, dates, sesame, and wool were carefully charted, continuously through centuries, with the purpose of predicting them. In fact, just like contemporary technical analysts do, the diary keepers would adjust the frequency at which they recorded the market quotations according to the level of market volatility.

More recently, technical analysis was used in the 17th century at the Amsterdam Exchange where business was conducted in a way that is remarkably similar to that of current exchanges. In Confusión de Confusiones (1688), one of the oldest books ever written on stock exchange business, Joseph de la Vega provides a vivid account of the dynamics of this Exchange and observes that “on this point we are all alike: when the prices rise, we think they will run away from us,” suggesting that people at that time were naturally inclined to make inferences about future prices based on past ones.

From the 18th century, the evidence that technical analysis was used in Japan comes from the writings of the legendary trader Munehisa Homma, who in his book The Fountain of Gold describes how market psychology can help predict prices; for example, “when all are bearish,” he suggests that “there is a cause for prices to rise.” Homma also documents the “candlesticks” charting technique, which is used to this day, especially in Japan.

Skipping one century ahead, to late imperial China, the similarities between Chinese merchant manuals and present-day technical analysis texts manifest themselves in the emphasis of both on the cyclicalities of markets and the role it plays in market timing. The statement from Essential Business, one such manual, that “when goods become extremely expensive, then they must become inexpensive again” is as fully understandable now in the context of trend reversals as it was then.

The foundations of the present day technical analysis were laid down in the early 1900s by Charles Dow. In the January 4th, 1902 edition of The Wall Street Journal, Dow proposed his famous definition of a trend as a sequence of successive highs and lows by saying that “it is a bull period as long as the average of one high point exceeds that of previous high points.” However, even this most recent form of technical analysis has never been formalised, but continues now as always to flourish on the fringes of the establishment and pass from one generation to the next through odd apprenticeships and confabulations, remaining to this day a most colorful part of the financial folklore.
Insights from the interviews with leading technicians

Given the lack of standardisation of technical analysis, learning about it from books is a daunting task: the contradictory advice and loose and frequent use of qualifiers such as “often” and “probably” throws the uninitiated into ambivalence and confusion. Learning about technical analysis from its leading practitioners is more inviting; after all, that is how this intricate craft survived till our time—not through books, but through the word of mouth.

If a single word could summarise the interviews we conducted, it would be “diverse,” as it captures both the intriguing beauty of this craft and the troubles that plague it. Spanning a striking variety of styles in their practice of technical analysis, our interviewees range from short-term traders (Raschke, Weinstein) to educators (Murphy, Acampora), long-term investors (Desmond, Deemer), artist technicians (McAvity), highly eclectic technicians (Dudack), historians (Shaw), long-term market theme writers (Farrell), and those who insist on being labeled market rather than technical analysts (Birinyi).

Diverse, too, are their interpretations of technical analysis, a telling illustration of which is provided by their responses to the question “does the lack of hard and fast rules in technical analysis ever bother you,” which varied from “that’s exactly what bothers me” to “but there are hard and fast rules in technical analysis.” The interviewees do agree however on one point, and that is the significance of the role intuition plays in their decision making. As Murphy puts it, “I’m not sure I could explain to you how I do what I do. I look at many things in a short interval of time and come to a conclusion.” That elusive skill may explain why these practitioners do not have a problem with sharing their knowledge, the tools they develop, or the strategies they pioneer. There is no single right way to put it all together. Everyone does it in slightly and sometimes widely different ways. Some technicians operate best in complete isolation from the outside world—Linda Raschke, who does not watch TV or read The Wall Street Journal, is a prime example—others prefer to complement their technical perspectives with fundamental, economic, and political ones.

The palpable heterogeneity among leading technicians that emerges from our interviews yields a potential explanation for the lack of impact that technical analysis has had on the broader financial community. Without a unified, standardized, and broadly recognised body of knowledge in which every practicing technician must be conversant, it is difficult to see how technical analysis can spread. The advent of the Chartered Market Technician program by the Market Technicians Association is a step in the right direction but, as our interviews underscore, there is still a considerable amount of art and subjectivity in the practice of technical analysis.

Towards a science of technical analysis

For too long languishing in the murky waters of part art-part science, technical analysis is finally starting to develop a more rigorous approach. Big strides, indeed, have been made towards the standardization of technical analysis in recent years, such as by Aronsohn (2007) and Kirkpatrick and Dahlquist (2006). The impetus for statistically evaluating technical analysis naturally comes from academia, with studies yielding evidence of its validity in wide-ranging areas, such as moving averages (Brock, Lakonishok, and LeBaron, 1992), genetic algorithms to discover optimal trading rules (Neely, Weller, and Dittmar, 1997), and the Dow Theory (Brown, Goetzmam, and Kumar, 1998), to name a few.

In their quest to quantify technical analysis, academics have turned, too, to the most controversial of its techniques: patterns. Finding patterns in price charts is a subjective endeavour that relies on the natural smoothing filter of the human eye; a main challenge therefore in quantifying the patterns lies in modelling the way in which eyes smooth the data they view. The pioneering works by Chang and Osler (1994, 1999) and Lo, Mamaysky, and Wang (2000), as well as the recent extension of the latter by the author (Hasanhodzic, 2007), take on this challenge by smoothing the data using statistical filtering techniques, such as kernel regression and neural networks. They then develop algorithms to identify automatically technical patterns in that data, and finally evaluate the information content of the patterns thus found. These works, too, find proof of the validity of technical analysis.

The observation that human nature never changes, and that consequently technical indicators designed to measure the reflection of human nature in market prices never change either, is a notable argument in favour of technical analysis, but one that at the same time underscores its main shortcoming: technical analysis has not kept up with technological advances. Of course, charting and data collecting have become automated, but most popular patterns and heuristics of today were developed in the pre-computing age when calculating a simple moving average was a formidable task. For example, a 10-day moving average became popular because it was easy to compute—one could divide by ten simply by moving the decimal place to the left—not because it was statistically optimal, and it remains commonly used to this day.

Suboptimal parametrisation is only a symptom of a chronic disease afflicting technical analysis: its static nature cannot account for the ever-changing character of financial markets. In the past, when execution was manual and costly, and financial systems far less connected and complex, “static” used to be a prerequisite for implementability, now it is a condition for failure. As markets evolve and trading strategies become more sophisticated, the need for new, dynamic indicators becomes apparent. Never has this need been more urgent than now, when in the light of the events of last year’s August, one can no longer deny that hedge funds have become a paramount force: it is not the feeling of the crowd but the action of a single gigantic hedge fund that precipitated the crisis continuing to this day. This is echoed by many of our interviewees, including Walter Deemer who finds ingenious ways of tracing the hedge-fund activity indirectly, via certain mutual funds: “I am convinced that these 6 or 7 billion dollars of assets in Rydex funds reflect the general hedge-fund trading activity which is the driving force in the market,” he notes.

Directly tracking hedge-fund activity is of course what one would want, but this is problematic if not infeasible for, shrouded in secrecy, hedge funds are notorious for their inaccessibility and infrequent reporting. A possible way to circumvent this problem is jointly proposed by the author (Hasanhodzic and Lo, 2007), and consists of replicating hedge funds in a transparent and publically available format. Starting from the empirical observation that a large portion of hedge-fund returns can be obtained by passive exposure to certain common risk factors such as those captured by stocks, bonds, currency, commodity, and credit markets—we show how hedge-fund returns can be expressed in terms of returns realized in those markets, via a linear regression model. Based on this idea, a number of prominent asset-management firms have recently launched mutual funds that aim to replicate hedge-fund
factor exposures. Unlike hedge-fund returns, the returns of these funds are public and updated daily, and can be used as an indicator of the aggregate performance of the hedge-fund sector. Moreover, assets flowing in and out of these mutual funds are publically available, which raises the possibility of using them to gauge the investors’ sentiment shifts.

Conclusion
In this article we presented some of our perspectives on technical analysis spanning past, present, and future. Our historical exploration reveals that technical analysis was a force throughout centuries and across cultures. Our interviews with the present-day masters of technical analysis help us understand what technical analysis is, and armed with that understanding we can move towards the future, which in our view consists of standardisation and development of new indicators to measure fast-changing market environments. Although the fortress walls separating technicians from the adherents of modern finance still stand tall, they are not insurmountable, and we hope that the growing volume of in-depth examinations of technical analysis will awaken the sceptics and open the door for the dialogue between the two communities to begin.

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