

# Point and Figure charting: A computational methodology and trading rule performance in the S&P 500 futures market

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## Abstract

This paper empirically contributes to the existing trading rule literature by providing a methodology for the calculation of Point and Figure charts using ultra-high-frequency data and tests trading rules using eight objective, pre-defined trading rules on S&P 500 futures contracts traded between 1990 and 1998. To assess the robustness of reported profits, a bootstrapping adjustment was conducted to determine the forecasting power of the PF trading rules. The results producing mixed statistical significance with some rules proving significant while many others were not.

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## 1. Introduction

Point and Figure charting is a technical analysis technique in which time is not represented on the  $x$ -axis, but merely price changes (independent of time) are recorded via a series of ‘X’s for increasing price movements and ‘O’s for decreasing price movements. Trading rules are then defined over particular patterns in the ‘X’s and ‘O’s—somewhat analogous to conventional charting. As such, ‘Point and Figure’ concentrates solely on changes in asset prices, regardless of the time required to produce such price movements. This means that data, particularly ultra-high-

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frequency data, can be considerably condensed by discarding small price changes, while still capturing user-determined levels of ‘material’ price changes on a continuous basis.

Anecdotal evidence suggests that the technique has been known and used by practitioners for over 100 years. Indeed, the earliest reference to Point and Figure charting known to us is deVilliers (1933), who claims that the method has “...grown from crude beginnings more than fifty years ago [and is] ...herewith described for the first time” (deVilliers, 1933:7). Moreover, Point and Figure charting is now a standard feature on many widely used professional market analysis software systems.<sup>1</sup> Taylor and Allen (1992), surveyed foreign exchange dealers in London about their analytical techniques and found that over 90% of survey respondents relied on technical analysis at some point for asset allocation decisions. Therefore, we assume here that Point and Figure does play some role in the trading strategies of financial markets practitioners, but the academic literature has largely ignored the question of the usefulness of this technique.

The relevant literature on Point and Figure is extremely small—to our knowledge only three academic works have been published, two written in German by Hauschild and Winkelmann (1985) and Stottner (1990) and the most recent by Elliot and Hinz (2002).<sup>2</sup> The remainder of the literature has been published in the form of books including Aby (1996), Cohen (1960), Dorsey (1995), Seligman (1962), Wheelan (1954), Zieg and Kaufman (1975) and Davis (1965).<sup>3</sup>

Hauschild and Winkelmann (1985) examined several simple Point and Figure trading rules using daily data on 40 companies listed on German equity markets between 1970 and 1980. Their use of daily data can produce some problems with the calculation of Point and Figure results.<sup>4</sup> While they did not present results for individual firms, based on their aggregated results across all firms, the Point and Figure technique was unable to outperform a simple buy-and-hold strategy for the period.

Stottner (1990) also focused on equity markets examining 445 German and overseas companies. The data set comprised closing data for periods of between 70 months and 14 years prior to the conclusion of the test in February 1989. Stottner (1990) used Point and Figure charting but in a manner more akin to a simple filter-rule strategy with no complex pattern assessment. As with Hauschild and Winkelmann (1985), he also found that Point and Figure produced trading results inferior to a simple buy-and-hold strategy. However, the use of the filter rule type approach by Stottner (1990) casts some doubt as to the ability to fully assess the results as an accurate reflection of Point and Figure trading rule performance during the test period. This is because the technique adopted in Stottner (1990) considers very simple Point and Figure trading rules without testing the rules that have appeared in much of the popular (practitioner) Point and Figure literature.

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<sup>1</sup> For example, Bloomberg, Reuters, TradeStation and MetaStock include Point and Figure as part of their technical analysis software.

<sup>2</sup> Both German articles gratefully translated by Ralf Becker, an econometrics PhD student at Queensland University of Technology.

<sup>3</sup> Most of these works provide reasonably elementary treatment of the subject and/or provide largely unstructured methodologies that are unsuitable for rigorous academic journals. Examples of poor methodology include the use of spurious trendlines that have little a priori value, vaguely defined/subjective chart ‘patterns’ and trade entry/exit ‘rules’ which become so onerous in their specification that they are unlikely to be of practical value due to the rarity of such complex conditions being met.

<sup>4</sup> For example, when dealing with Open, High, Low, Close data inferences/guesses must be made about whether the day’s highest price was traded before the day’s low to determine whether a price reversal has occurred during that day. Furthermore, if only closing prices are used then trading activity through the day (which may have produced a buy/sell signal) is not recorded reducing the accuracy of the recorded price movements.

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