

# *Charting as a powerful technique for analyzing financial markets*

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## **Abstract**

*A chart is the traditional tool of the market analysis. Charts are merely graphical displays of data. Many chart varieties have evolved over the centuries, but the basic principle of graphing price and other important information is the cornerstone of technical analysis. From these charts, analysts recognize patterns and trends that can be useful in trading and investing. Of course, the chart method is also subject to considerable criticism largely because the recognition of patterns and trends is subjective, based on the analyst's skill and experience. We propose to take a look over the techniques and methods the investors and analysts use to evaluate the movements in the value of stocks and other assets of different companies present in the markets, and take a closer look over the most useful charts and charting techniques used today. This issue makes the rationale of this paper. For the purpose of our research, it is important to understand the level of recognition and usage of different chart types in different entities in our country. So, the purpose of this paper is to investigate the level of recognition and usage of different chart types in different business organizations in Albania. The purpose of this paper fully supports the research question expressed as: **What is the level of recognition and usage of different chart types in the business organizations in Albania?**; The research methodology is specified following its main dimensions, and the research is based on primary and secondary data collection. Some recommendations are also part of this paper.*

**Key words:** *financial markets, charting techniques, business organizations*

## 1. Introduction

“A chart is like a cat’s whiskers. A cat’s whiskers tell the cat which way the mouse will turn and thus which way to pounce. The mouse doesn’t think about which way it will turn, but the cat must anticipate that direction. Likewise, the market doesn’t know which way it will turn, but the analyst must anticipate that turn. He uses a chart as his whiskers” (Sieki Shimizu, 1986)

A chart is the traditional tool of the technical analyst. Charts are merely graphical displays of data. Many chart varieties have evolved over the centuries, but the basic principle of graphing price and other important information is the cornerstone of technical analysis. From these charts, technical analysts recognize patterns and trends that can be useful in trading and investing. Of course, the chart method is also subject to considerable criticism largely because the recognition of patterns and trends is subjective, based on the analyst’s skill and experience.

Some analysts are now using pattern-recognition systems and other computerized methods, and early results have demonstrated that, indeed, many of the traditional chart patterns have some predictive value. Charts have other uses, however, if only to quickly observe the history of prices. The benefits of chart use outweigh the problems associated with their interpretation.

## 2. A brief history of charting

The earliest known recording of commodity prices with the intent to predict from them was in ancient Babylonia in the first millennium B.C. These recording were diaries of traders and astronomers who were attempting to correlate astrology with price changes. By the fifth and sixth centuries A.D., price charts, similar to those used presently, were developed in China, Europe, and Japan.

The Chinese were interested in cyclicity of prices; the Europeans were interested in astrology; and the Japanese developed the candlestick chart that is still in use today. The “opening of commodity exchanges in Western Europe (1561) and Japan (1654) provided the necessary environment for the development of the chart” (Shimizu, 1986, p 14). At the time of these exchanges, freely trading markets had become sophisticated enough to produce multiple prices during a trading day and, thus, the requirement for recording the high, low, and close price of each commodity traded on the exchange. It was only natural that this information was portrayed in graphic form.

Plausibly, the first type of chart was just a simple plot on paper of a number, either amount or price, and a date. In early Japan, for example, rice was traded by amount. Instead of a price per bag, it was the number of bags per price that was recorded by the famous rice trader Sokyu Honma in the 1750s. As markets began to trade more frequently during the day, the chart became more complex. A high and low price could be recorded, and eventually as multiple trades occurred, an open and close price could be added. Volume (amount) was recorded much later when more complete and public records were available. At first, witnesses located in the marketplace recorded prices. Eventually, markets became better organized, and prices and amounts were publicly available.

The growth of this business is of great monument to the stock exchange, for it is through the instant dissemination of the quotations made on its floor that the active and continuous interest in the markets is sustained. (Horace L. Hotchkiss, founder of the Gold Stock and Telegraph Company)

Modern technology has greatly simplified the task of chart construction. Computer power has replaced much of the tedious human work. Now, even basic home computers have spreadsheet programs, such as Microsoft Excel, that can store daily stock price data and create a variety of charts used by technical analysts. In addition, other sophisticated software programs that are specifically designed for technical analysis are readily available. These programs not only plot charts and indicators or oscillators but also can test trading rules.

Today, the technical analyst can focus much more time and attention on analysis and much less on chart construction. Over the years, technicians developed several different approaches to chart construction. The main categories of charting that we discuss here are line charts, bar charts, candlestick charts, and point-and-figure charts. Each approach has its own features, benefits, and drawbacks. Whichever method an analyst chooses to use, charts serve as the technical analyst's road map. Charts give a quick and concise picture of past price action. For example, look at Table 1. This table contains the closing price for Alcoa for the month of February 2010.

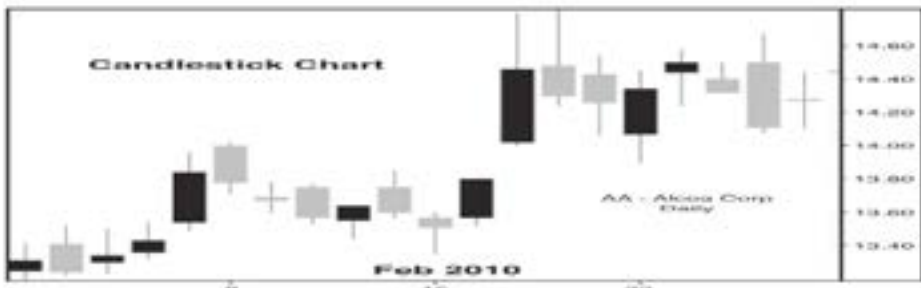
**TABLE 1.** Stock Price Data for AA in Tabular Form.

Date	Open	High	Low	Close	Volume
2/1/2010	12.99	13.39	12.93	13.30	403,075,000
2/2/2010	13.46	13.86	13.19	13.67	313,541,100
2/3/2010	13.60	13.89	13.43	13.49	361,015,000
2/4/2010	13.39	13.39	12.90	12.91	448,287,000
2/5/2010	12.99	13.79	12.81	13.58	413,988,100
2/8/2010	13.18	13.33	13.03	13.06	314,475,000
2/9/2010	13.88	13.88	13.10	13.26	448,023,100
2/10/2010	13.31	13.34	13.09	13.56	313,048,100
2/11/2010	13.18	13.65	13.12	13.59	344,224,500
2/12/2010	13.23	13.42	13.19	13.28	461,184,500
2/16/2010	13.32	13.73	13.55	13.74	371,884,200
2/17/2010	12.89	13.99	12.81	13.60	265,052,000
2/18/2010	12.47	13.60	12.40	13.63	377,343,500
2/19/2010	13.42	13.89	13.40	13.34	281,372,000
2/22/2010	13.68	13.90	13.64	13.54	311,185,500
2/23/2010	13.44	13.52	13.08	13.18	311,022,000
2/24/2010	13.18	13.34	13.05	13.28	461,184,500
2/25/2010	12.90	13.19	12.80	13.11	311,022,000
2/26/2010	12.38	12.37	13.12	13.30	241,750,000

Source: [www.finance.yahoo.com](http://www.finance.yahoo.com)

It is difficult to look at the 19 closing prices in this table and get an idea of whether the stock price trend is up, down, or sideways. Now look at Figure 1. This chart contains the same information as Table 1. Notice how much easier it is to process the information when it is provided in the picture form of Figure 1 rather than in tabular form. As the old saying goes, "A picture is worth a thousand words." With just a glance at the chart, you have a road map of where prices have been; in a fraction of a second, you can easily spot the highest prices and lowest prices that occurred during the period. A chart quickly transforms a table of data into a clear visual representation of the information. Today, the most common types of charts that record prices at given time intervals (such as hourly, daily, weekly, or monthly) are line charts, bar charts, momentum bar charts, candlestick charts, point and figure charts and line break charts. Let us look at each of these charts and see how they differ.

**FIGURE 1.** Stock price information for AA in chart form (daily: February 1-26, 2010)



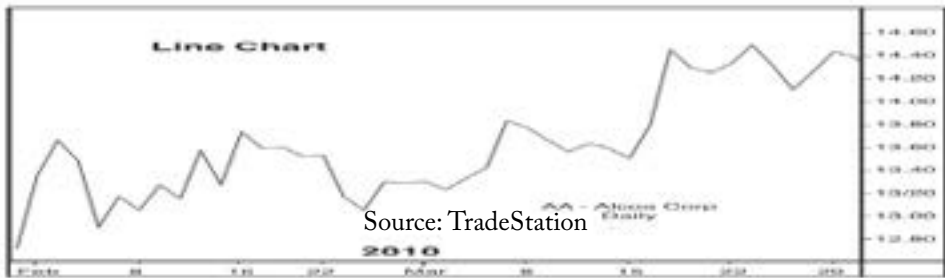
Source: TradeStation

### 3. Line Charts

Figure 2 is an example of a line chart. These simple charts provide information about two variables, price and time. In Figure 2, the price variable is the daily closing price for AA (Alcoa Corporation). A line chart has price data on the vertical, or y, axis. On the horizontal, or x, axis it has a time measure (hours, days, weeks, etc.). Simple line charts are especially useful when studying long-term trends. Because line charts display summary statistics, they are often used when information about several different variables is being plotted in the same graph.

For example, in Figure 3, three line charts are used to plot the daily close of the Dow Jones Industrial Average, the S&P 500, and NASDAQ for the past four years. Journalists often use line charts to give the reader a quick, concise picture of the variables being discussed. Figure 3 represents daily data. Line charts, however, can be used to present data collected at any time interval. More frequent data

**FIGURE 2.** Line chart of AA daily closing prices (daily: January 31, 2010–June 29, 2010)



**FIGURE 3.** Line charts of the daily closing prices of DJIA, S&P 500, AND NASDAQ Composite



Source: TradeStation

collection will lead to a more detailed, but more cluttered, graphical presentation. Especially when studying long-term trends, these extra details muddy the picture and obscure basic trends.

#### 4. Bar Charts

Although the line chart visually displays one piece of information for each time interval, a bar chart shows at least three pieces of information: the high, the low, and the closing price for each time interval. Some bar charts also contain a fourth piece of price information, the opening price. Each time interval (that is, day, week, or five-minutes) is represented by one bar.

Figure 4 is an example of a daily bar chart. Each bar represents one day's price action. Just as with the line chart, price data is placed on the vertical axis, and time is measured on the horizontal axis. A vertical line shows the trading range for that day. The top of this vertical line represents the highest price at which the security traded on that day; the bottom of the bar represents the lowest trading price of the day. A longer line denotes a wider trading range during the day. Likewise, a short bar means that the spread between the highest price during the day and the lowest

price during the day was small. A small tick mark on the right side of the bar indicates the closing price for the day. If the opening price for the day is recorded on the bar chart, it is represented by a small tick mark to the left side of the bar.

**FIGURE 4.** Daily bar chart (arithmetic scale) for AA (March 31, 2010–June 29, 2010)



Source: TradeStation

We see that the first bar in Figure 4 represents trading information for AA on March 31, 2010. The lowest point of the bar is 14.22, which is the lowest price that a share of AA traded for that day. The highest price anyone paid for a share of AA that day was \$14.44, represented by the top of the bar. The difference between the high and low price in any bar is called the range. The opening price for AA was \$14.30, represented by the left hash mark. The right hash mark at \$14.24 represents the closing price. Just as with the line chart, bar charts can be constructed for various intervals of data collection.

## 5. Momentum Bar Charts

Momentum bars are charted as standard vertical bars with opens, highs lows and closes, yet each bar has a specified price range, rather than being charted in units of time or ticks. With a focus on price movement, long periods of consolidation (sideways move) may be condensed into just a few bars, removing excess noise in the market and highlighting “real” price movements. So it is possible that an entire month of daily bars could fit into a single Momentum Bar, and the next month would have 30 Momentum Bars.

Momentum Bars are built by the underlying closing data that shows the directional trends as per the range amount. Momentum Bar charts are time independent so that time axis increments will not be fixed. The size of the bars will always be the range size set by the analyst and will never be anything smaller or larger unless it is the current bar that is building.

Momentum Bars look like standard bars, but are different in several ways: Momentum Bars are all equal in height, based on the Range specified by the user. Momentum Bar closes are always at the top or bottom of the bar. Momentum Bar charts have no gaps. The open of each Momentum Bar is always one price tick above or below the close of the previous Momentum Bar; since a new bar cannot be started until the specified Range is exceeded. In Figure 5 below, the Momentum Bar chart is using a price Range of 1.

**FIGURE 5.** Daily momentum bar chart



Source: TradeStation

Since Momentum Bars are driven by price movement, a new Momentum Bar is only created once the specified Range has been exceeded. For example, if the specified Range amount is \$10, it means that each Momentum Bar will have a range (High to Low) of \$10. It is thus conceivable that a single Momentum Bar could represent several days if the movement throughout those days was only within a \$10 price range.

Once a Momentum Bar is closed-out, the open of the next Momentum Bar will always be one tick above or below the close of the prior Momentum Bar. There are no gaps displayed on Momentum Bar charts, so when there is a price gap in the underlying data, “virtual bars” will be inserted as necessary to fill in the gap on the Momentum Bar chart.

## 6. Candlestick Charts

This charting method was used as early as the mid-1600s to trade rice futures in the Japanese markets and continues to be the most popular form of technical analysis in Japan. These techniques have been widely used in the Far East for many generations, but not until the publication of the book *Japanese Candlestick Charting Techniques* by Steve Nison in 1991 were Western traders introduced to candlestick charts. Before the publication of Nison’s book, very few U.S. and

European services offered candlestick charts. Today, almost every technical analysis software package and technical service offers candlestick charts.

Candlestick charts are similar to bar charts in their construction. Both charts use the high price, low price, and closing price, but candlestick charts always include the opening price. To construct a candlestick chart, the low and high prices are plotted on a thin bar, just as they would be for the bar chart we just discussed. A box is used to represent the opening and closing prices. To create this box, a horizontal mark is made at both the opening and closing prices; a rectangle is formed using these two horizontal marks. This rectangular box is called the real body of the candlestick. If the security closed at a higher price than it opened, the real body is white (gray in the charts here) or open. These white, or “open,” real body candlesticks indicate price advances from the opening. Conversely, if the closing price falls below the opening price, the real body of the candlestick is shaded black. These candlesticks with a “closed,” or black, real body designate price declines from the opening.

Figure 6 is a candlestick chart of daily prices during the second quarter of 2010 for AA. Much more colorful than the bar chart, the candlestick chart makes it easy to spot immediately days in which AA closed at a higher price than it opened. For example, the candle for the first trading day of the chart, March 31, has a gray body, indicating that the stock closed at a higher price than it opened. The following day, however, we see a black-bodied candlestick, indicating that the stock closed lower than it opened that day even though it close higher than the first day.

**FIGURE 6.** Daily candlestick chart for AA (March 31, 2010–June 29, 2010)



Source: TradeStation

As you can see in Figure 6, candlesticks come in a variety of shapes and sizes. If the real body of the candlestick is tall, the opening price and closing price were relatively far apart. Shorter real bodies indicate opening and closing prices that were similar. In the extreme, the real body can be so short that it is just a horizontal line, indicating that the opening and closing prices were identical. The thin vertical bars, representing the price extremes of the trading session, are called the shadows.



The shadow above the real body is called the upper shadow; the shadow below the real body is called the lower shadow. You can easily see how the candlestick chart got its name; many times, the real body will look like a candle and the upper shadow will look like the wick.

## 7. Point And Figure Charts

The point-and-figure chart records price data using a very different technique than line, bar, and candlestick charts. Because many of the point-and-figure charts are constructed using intraday trading data, use of these charts was historically limited to professional analysts who had access to intraday data. However, you will see that point-and-figure chart construction is not that difficult and provides an accurate method of price analysis. Point-and-figure charts account for price change only. Volume is excluded; and although time can be annotated on the chart, it is not integral to the chart. Time is of little importance in point-and-figure chart analysis. In many cases, it is plotted only to see how long it takes for a formation or pattern to form.

The origin of point-and-figure charts is unknown, but we know they were used at the time of Charles Dow around the late nineteenth century. More likely “point” refers to the location of the price plot, which at first was just a pencil-point mark. “Figure” comes from the ability to figure from the points the target price. Construction of a point-and-figure chart is very simple because only prices are used. Even then, only the prices that meet the “box” size and “reversal” size are included. Finally, the chart reflects the high and low of the period, whenever it is important. As with all of the charting methods, different analysts use variations of point-and-figure charting to best meet their particular needs. We discuss point-and-figure charts by looking at the oldest method, referred to as the one-point reversal point-and-figure method.

All point-and-figure charts are plotted on graph paper with squares that form a grid. As with the other types of charts, we will plot price on the vertical axis, but the bottom axis is not time scaled with the point-and-figure graph. The best way to learn to read a point-and-figure graph is to walk through an example of how this type of graph is constructed. Let us begin by taking a series of price changes in a stock of 43.95, 44.10, 44.3, 44.15, 44.5, 44.7, 44.9, 44.85, 44.95, 45.00, 45.05, 44.4, and 43.9. Each square on the graph paper will represent one point in the price.

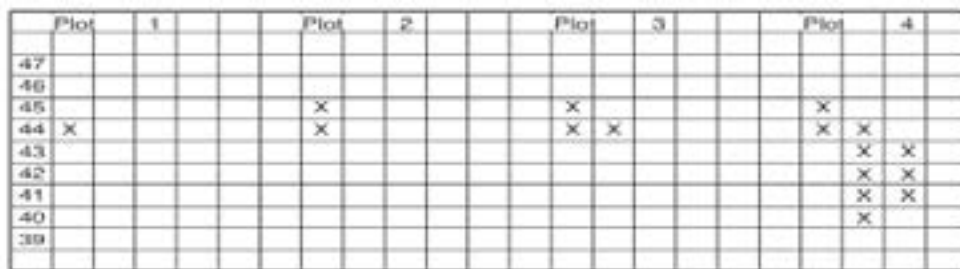
In point-and-figure charting, the plot is made only when the actual price of the box is touched or traded through. In this example, 43 would not be plotted because the price never reached 43 exactly or traded through to below 43. Forty-four would be plotted because the price ran from 43.95 to 44.10, trading through

44.00. Thus, our first plot for the point-and-figure chart would be placing an X in the 44 box when the price of 44.10 is observed, resulting in a chart that looks like Figure 7, Plot 1.

For the next seven reported prices, no mark is made on the chart because all of these trades are between 44 and 45. When the tenth price, 45.00 is observed, a second X is plotted because the price actually touched 45. This X is plotted in the 45 box in the same column, resulting in a chart that looks like Figure 7, Plot 2. We now know that this first column is recording an uptrend in the stock price. As long as the observed prices range above 44 and below 46, no more marks are made on the graph. For example, the next prices recorded in our sample data are 45.05 and 44.4. Because neither the next higher number (46) nor the next lower number (44) has been reached, no mark is made to represent this price observation. These trades are considered “noise” and the point-and-figure chart eliminates the plotting of this noise data.

It is not until the next price of 43.9 is observed that another mark is plotted. The price has now reversed downward through 44. Obviously, there is already an X at 44 in Column 1. Column 1 represented an uptrend in the price, and only price increases can be recorded in it. Therefore, we move to Column 2 and place an X at 44, as is shown in Figure 7, Plot 3. At this point, we don't know whether the trend in Column 2 is upward or downward. The second posting in this column will tell us. If the price should now rise to 45 again, we would place an X at 45, and Column 2 would record rising prices. If the price should decline to 43, we would place an X at 43, and Column 2 would record falling prices.

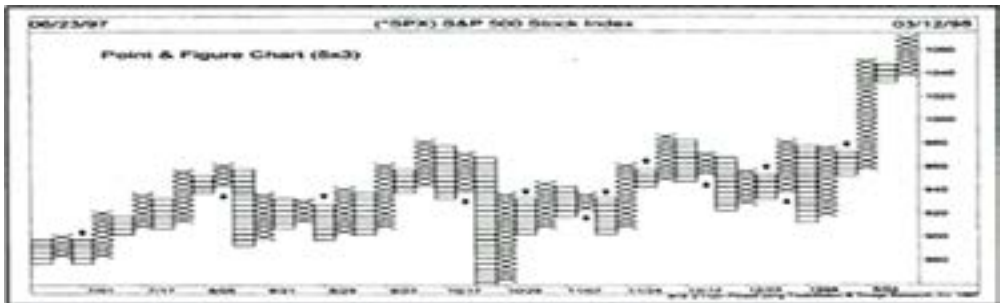
**FIGURE 7.** One-box reversal point-and-figure chart



Source: [www.finance.yahoo.com](http://www.finance.yahoo.com)

Let us say that the price declines in a steady stream with no one-box reversals to 39.65, and then it rallies back in a steady stream to 43.15. This would be represented as in Figure 7, Plot 4. A plot is made only in a new box when the price is trending in one direction and is then moved over and plotted in the next column when that price reverses by a box size and cannot be plotted in the same column. Remember

**FIGURE 8.** Point-and-figure chart



Source: TradeStation

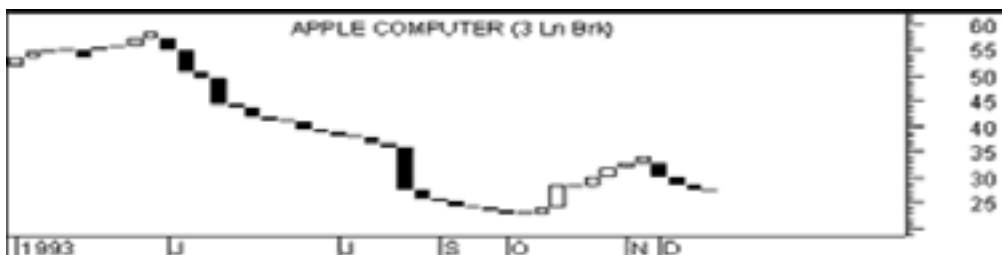
that a particular column can record only price increases or price declines; in our example, Columns 1 and 3 represent price increases and Column 2 plots price declines. Figure 8, shows a point-and-figure chart for S&P 500 Stock Index.

## 8. Line Break Chart

The Line Break chart is a “more subtle form of point and figure charts, where reversals are decided by the market”, as described by a Japanese trader. It is made up of a series of vertical blocks called lines that use closing prices to indicate market direction.

Line Break charts are most commonly known as “three-line break” charts. This is because once there are three consecutive lines in the same direction, the Close must “break” the most recent three lines in order to draw a line in the opposite direction. For example, once there are three consecutive Up Lines, the Close would have to break below the low of the prior three Up Lines before a Down Line can be drawn. In this example, the Line Break chart shows 3 line breaks must be broken in order for a line in the opposite direction of the current trend can be drawn:

**FIGURE 9.** Line break chart



Source: TradeStation

Line Break charts are built by the addition of new lines, based on the position of the Close relative to the most recent Line high/low values. A new 'Up Line' is added if the Close of the current bar is greater than the high of the previous 'Up Line'. A downward reversal occurs only if the Close of the current bar is less than the Lows of the specified number of prior Line Break lines. An upward reversal occurs only if the Close of the current bar is greater than the Highs of the specified number of prior Line Break lines. A new 'Down Line' is added if the Close of the current bar is less than the low of the previous 'Down Line'. If there is no new high or low, no line is added. Figure 8, shows the Line break chart for Apple Computer.

The Line Breaks value is the number of recent lines that the Close must "break" in order to draw a line in the opposite direction. Although 3 is the most common Line Breaks value, the analyst can specify any number of Line Breaks. Line Break charts are not time-based; they are built based on price activity. Thus, the lines on the chart will not necessarily represent the specified data interval or time period. Dates may not necessarily be evenly spaced across the time axis.

## 9. Methodology

It is generally recognized that the presence of the companies in the financial markets offers them a wide range of opportunities, and at the same time, obligates the investors and analysts to evaluate the movements in the value of stock and other assets of their own companies and other ones present in the markets.

A research regarding knowledge of managers and other technicians, on issues like: Financial Markets, Technical Analysis, Analyzing Methods, etc, was conducted in some business organizations of our country. The main focus of the research was on the knowledge of above mentioned groups, regarding different Charting Techniques and Tools, necessary for the displaying and analyzing of the internal workings of the markets.

Considering this, some questions that need addressing might rise up, for example: How do investors and analysts evaluate the movements in the value of stocks and other assets of different companies present in the markets? Which are the methods, techniques and tools used for analyzing financial markets? Are there present, besides Fundamental Analysis, other methods and ways that simplify the analysis of the markets? What is Charting? What are the most useful charts and charting techniques used today? Are Albanian managers and other technicians, supplied with the necessary knowledge about the markets and charting techniques, that help to correctly analyze them (markets)? These questions, at the same time, make the focal point, and hence the proposition of this paper.

In this research paper, we propose to take a look over the tools, techniques and methods that investors and analysts use to evaluate the movements in the value of stocks and other assets of the companies present in the markets, and at the same time take a closer look over the most useful charts and charting techniques used today. This issue makes the rationale of this paper. The purpose of this paper is to investigate the level of recognition and usage of different chart types in some business organizations in Albania.

The objectives of the research are to evaluate the level of the knowledge of managers and other technicians, in regard with:

- The advantages of presenting price information in a picture, or chart, format
- The construction of line charts
- The construction of bar charts
- The construction of candlestick charts
- The construction of point-and-figure charts
- The recognition of other chart types

The purpose of this paper fully supports the research question expressed as: **What is the level of recognition and usage of different Chart types (Financial Markets, Technical Analysis) in the business organizations in Albania?**

The purpose and the objectives of the research are supported by the hypothesis: There is a moderate level of **recognition and usage of different chart types** in the business organizations; The methodology used for the research is based on some dimensions such as: specification of research subjects, tools used for research, sampling, implementation plan, ethical issues and evaluation of results. The research is based on primary and secondary data collection.

### *Specification of research subjects*

After defining the hypothesis, we started the work about selection of the subjects of this research (some companies, managers, other technicians), that could be of interest for the purpose of this study. After distinguishing a number of companies of interest, we started the survey to collect the required information from the managers and other technicians of these companies.

### *Tools used for research*

In order to collect the necessary information to analyze the data, and to draw conclusions, several interviews were conducted based on a list of 14 questions. The interviews were intended to collect important data on different aspects of

Financial Markets, Technical Analysis, and particularly of Charting Techniques and Tools, etc. The analyses of the collected information would give us the overall level of knowledge about issues stated above.

### *Sampling*

Our original sampling consisted of 98 interviews with managers, and other technicians, in 14 companies, in the Tirana region. However, we could only use 84 of these interviews, because some of them lacked substantial information. However, the collected data could be considered as being representative.

### *Implementation plan*

Interviews were used to collect the necessary data from the research subjects. The way we were organized helped us in reducing the time required to perform the interviews and in reducing the costs. Collected data were processed in order to prepare the information and to draw conclusions.

### *Ethical issues*

The information collected from the interviews was very important for analyzing and interpreting the findings. The names of the respondents (companies', managers', technicians') due to ethical obligations were not disclosed in this paper.

## **10. Analyzes and Interpretation of research findings (Evaluation of results)**

This section is dedicated to the interpretation of research findings. Because of confidentiality reasons, comments and answers of the interviewed managers and other technicians are presented in a summarized form. We have not presented individual quotations in our findings. Data analyzes is based on the information collected from the interviews. Data processing is performed in collaboration with experts using SPSS statistical program, who helped making possible the creation of tables and the interpretation of findings.

The following presentation of the research findings is based on univariate analysis. Based on the expectations and objectives of this research, it has been impossible at this stage to develop analyzes other than descriptive ones. Further analyzes could be elaborated in future studies. Research findings are presented as follows:

1. To the Question “Do you have information about the importance of the presence of the companies in the financial markets?”, 76% of the respondents answered yes, which means that most of them were aware that financial markets are important for the activity of the companies.
2. To the Question “Do you know the countries with the most developed financial markets in the world?”, 88% of the respondents answered they knew some countries like America, Germany, France, Japan, London, Singapore, etc. This supports the fact that the world most developed countries have the most developed markets, and that the existence of well-developed markets shows something about the level of the country development.
3. To the Question “Has your company ever been making operations in the markets or been part of the markets?”, 72% answered no, but the majority of the respondents were sure that their parent companies have been part of the operations in the markets. These figures support the fact that the majority of the respondents were aware of the presence of their parent (foreign) companies in the financial markets (markets), but most of their subsidiaries in Albania were not participants.
4. To the Question “Do you have information about the role of the Fundamental Analysis in predicting the movements in the value of stock and other assets of their own companies and other companies present in the markets?”, 66% of the respondents answered yes, which means that a considerable part of the managers answered were aware that fundamental instruments for analyzing financial markets exist.
5. To the Question “Are you aware of the fact that many technical (analysis) methods are used to predict the movements of the financial markets?”, 74% of the respondents answered no, which means that a considerable part of the managers answered were not aware that technical instruments for analyzing financial markets exist.
6. To the Question “Do you have information about the Charts and different Charting Techniques?”, 66% of the respondents answered yes, showing that a considerable number of respondents had information on this issue.
7. To the Question “Have you ever heard of Bar Charts?”, 84% of the respondents answered yes. The figure shows that there existed a considerable number of respondents having information about Bar Charts.
8. To the Question “Have you ever heard of Candlestick Charts?”, 80% of the respondents answered yes. These figures show that there existed a considerable number of individuals having information about Candlestick Charts.
9. To the Question “Have you ever heard of Point and Figure Charts?”, 94% of the respondents answered no. These figures show that there existed a

- considerable number of individuals that do not have information about Point and Figure Charts.
10. To the Question “Have you ever heard of Momentum Bar Charts?”, 98% of the respondents answered no. These figures show that there existed a considerable number of individuals that do not have information about Momentum Bar Charts.
  11. To the Question “Have you ever heard of Line Break Charts?”, 98% of the respondents answered no. These figures show that there existed a considerable number of individuals that do not have information about Line Break Charts.
  12. To the Question “Have you ever heard of other types of Charts that exist?”, 98% of the respondents answered no. These figures show that there existed a considerable number of individuals that do not have information about other types of Charts.
  13. To the Question “Do you think that Charting Techniques are really helpful in predicting the movements in the financial markets?”, 60% answered yes, which means that the majority of the respondents did accept that Charting Techniques are helpful in predicting the movements in the financial markets.
  14. To the Question “Do you think that it is already the proper time for many companies of our country to be part of financial markets?”, 72% of the respondents answered yes, which means that the majority of the respondents thought that companies of our country should benefit by using financial markets.

In order to show the validity of the hypothesis, we have continued with the analysis of the results about the **level of recognition and** usage of Financial Markets, particularly of different Charting Techniques and Tools, in the business organizations, under study.

Answers to the questions about the knowledge level on the markets and the charting techniques were organized in a table, and Arithmetical Average, Standard Deviation and Variation Coefficient were used to describe the quantitative data. The Arithmetical Average was adequate for describing the quantitative data collected from the answers to the questions specified above. The Standard Deviation has shown the deviation of the answers of the respondents from the average. The Variation Coefficient, as expressed in percentage, has shown the average deviations of the observations from the arithmetic average. The more homogeneous the data are, the smaller the variation coefficient value is.

The analysis of the table above has enabled us to give an answer to the Research Question of this paper. The analysis has showed that about 50% of the companies are found to belong to the scale “Low level” of the **recognition and** usage of



**TABLE 2. Level of recognition and usage of Financial Markets, Technical Analysis, and different Charting Techniques and Tools**

	Level of recognition and usage of different Chart types (Financial Markets, Technical Analysis)	Low level (No)	Moderate level (not completely)	High level (Yes)
1	Do you have information about the importance of the presence of the companies in the financial markets?	22%	2%	70%
2	Do you know the countries with the most developed financial markets in the world?	8%	4%	55%
3	Has your company ever been making operations in the markets or been part of the markets?	72%	12%	10%
4	Do you have information about the role of the Fundamental Analysis in predicting the movement in the value of the stock and other assets of the business companies and other companies present in the markets?	18%	10%	50%
5	Are you aware of the fact that many technical (analytic) methods are used to predict the movements of the financial markets?	74%	8%	20%
6	Do you have information about the Charts and different Charting Techniques?	24%	10%	60%
7	Have you ever heard of Bar Charts?	14%	2%	54%
8	Have you ever heard of Candlestick Charts?	18%	2%	50%
9	Have you ever heard of Point and Figure Charts?	94%	4%	2%
10	Have you ever heard of Momentum Bar Charts?	95%	0%	2%
11	Have you ever heard of Line Break Charts?	98%	2%	0%
12	Have you ever heard of other types of Charts that exist?	98%	0%	2%
13	Do you think that Charting Techniques are really helpful in predicting the movement in the financial markets?	32%	8%	60%
14	Do you think that it is already the proper time for many companies of our country to be part of financial markets?	22%	8%	72%
	Average	49.42%	5.28%	45.20%

Financial Markets, Technical Analysis, and different Charting Techniques and Tools.

Findings have shown that business organizations in Albania **recognize and** use the Financial Markets, Technical Analysis, and different Charting Techniques and Tools in a “Low level”.

So, we have given an answer to the research question expressed as: **What is the level of recognition and** usage of different Chart types (Financial Markets, Technical Analysis) in the business organizations in Albania, dealing with financial markets? Hence the hypothesis: There is a moderate level of **recognition and** usage of different chart types in the business organizations dealing with financial markets; has not been valid.

## Conclusions

At the end of the paper, based on secondary data and analyzes performed on the collected answers, we were able to draw the following conclusions:

- The chart is a tool of analysts, not an end in and of itself. Therefore, there is not one correct charting technique but several that can meet a variety of analysts' needs.

- There are several different methods that analysts use to create charts.
- Line charts, which plot a single statistic, are the simplest of these methods.
- Bar charts and the more colorful Japanese candlestick charts provide more summary information, such as the opening price, the closing price, and the price range for a particular trading period. Point-and-figure charts provide a much different approach to graphing price data; with this method, sequential trading data is plotted with price trends and reversals emphasized.
- All types of charts can include data of varying frequency: monthly, weekly, daily, and even intraday data.
- The frequency that an analyst will choose will depend upon the type of analysis and the period being explored.
- The majority of managers and other technicians are aware of the fact that financial markets are very important for the activity of the companies.
- The majority of managers and other technicians are aware of the fact that the world most developed countries have the most developed markets.
- The majority of the managers and other technicians are aware of the presence of their parent (foreign) companies in the financial markets (markets), but most of their subsidiaries in Albania are not participants.
- A considerable part of the managers and other technicians are aware that fundamental instruments for analyzing financial markets exist.
- A considerable part of the managers and other technicians are not aware that technical instruments for analyzing financial markets exist.
- A considerable part of the managers and other technicians are aware about the Charts and different Charting Techniques.
- The majority of the managers and other technicians think that companies of our country should benefit by using financial markets.

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