

Czech University of Life Sciences Prague

Faculty of Economics and Management

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Diploma Thesis

Analysis and estimation of Nordstrom stock value

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Thesis title

Analysis and estimation of Nordstrom stock value

Objectives of thesis

The main goal of this thesis is to estimate the future value of Nordstrom(JWN) stock that is indexed on NYSE. Furthermore, Nordstrom(JWN) as an American luxury department store chain will be compared with its international counterparts. Markets, where these companies operate, will be evaluated. Fundamental and technical factors that influence current and future value will be determined. In order to achieve the goal, market indicators, trading strategy, and risk management will be considered which affect Nordstrom(JWN) stock prices.

Methodology

In the thesis, there will be two main parts Fundamental analysis methods and technical analysis methods...

- The theoretical analysis will be included: Nordstrom company intro, JWN stock history price performance, Stock market external environment analysis.
- The practical analysis will be included the following quantity analysis: ratio analysis, Beneish model which indicates the earning report reliability, Dividend Discount Model(DDM) and Discounted cash flow(DCF) which estimates stock price.

All the Nordstrom(JWN) secondary data will be collected from previous Annual Financial statements, data tracking tool(google trend, Alexa Competitive Analysis) S&P 500 index, and New York Stock Exchange.

The proposed extent of the thesis

60 pages

Keywords

Stock, NYSE, JWN, DCF, DDM, Beneish model

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Declaration

I declare that I have worked on my diploma thesis titled "Evaluation of the European stock market" by myself and I have used only the sources mentioned at the end of the thesis. As the author of the diploma thesis, I declare that the thesis does not break copyrights of any their person.

In Prague on

31st, Mar, 2021 Zhou Qidi

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Analysis and estimation of Nordstrom stock value

Abstract:

Diploma Thesis deals with the estimation of JWN stock value. The Theoretical part is provided information about S&P500 trend, JWN stock performance, explanation of various ratios, financial fraud detective model, and stock value estimation model. Those tools include the weighted average cost of capital (WACC), Cash flow to Firm (FCFF), and Capital Asset Pricing Model (CAPM), etc. The purpose of the theoretical part is to provide a research basis. In the Practical part, the thesis will pay attention to Fed policy and DXY index to analyze U.S macroeconomy, detect financial fraud by calculating M-score and use DCF to predict JWN stock price. In the end, the conclusion will view of U.S stock market future trend. Do the risk management by detecting if there is any financial fraud in JWN financial report and give investor suggestion on trading strategy Based on estimated JWN stock.

Keywords:

Stock, NYSE, JWN, DCF, DXY index, Beneish model, Fed policy, Covid-19

Analýza a odhad hodnoty zásob společnosti Nordstrom

Abstrakt:

Diplomová práce se zabývá odhadem hodnoty akcií JWN. V teoretické části jsou uvedeny informace o trendu S & P500, výkonnosti akcií JWN, vysvětlení různých poměrů, detektivní model finančních podvodů a model odhadu hodnoty akcií. Mezi tyto nástroje patří vážené průměrné náklady na kapitál (WACC), peněžní tok do firmy (FCFF) a model oceňování kapitálových aktiv (CAPM) atd. Účelem teoretické části je poskytnout výzkumnou základnu. V praktické části se práce bude věnovat zásadám Fedu a indexu DXY za účelem analýzy makroekonomie USA, detekce finančních podvodů výpočtem M-skóre a použití DCF k předpovědi ceny akcií JWN. Na závěr se v závěru podíváme na budoucí trend amerického akciového trhu. Proveďte řízení rizik tím, že zjistíte, zda ve finanční zprávě JWN nedochází k žádným finančním podvodům, a poskytněte investorům návrh obchodní strategie na základě odhadovaných zásob JWN.

Klíčová slova :

Stock, NYSE, JWN, DCF, DXY index, Beneish model, Fed, Covid-19

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1 Introduction

With the development of stock theory, stock models began to emerge, which played a great role for stock value evaluation. 2020 is a special year, as the outbreak of COVID-19 causes sharp volatility in the stock market. U.S. stocks experienced four fuses in just ten days in March 2020. This is unprecedented in the history of U.S. stocks. Nordstrom (JWN), as the traditional industry who is most affected by the pandemic, also suffered the biggest stock price sell-off. Then a series of monetary policies by the Federal Reserve led to the biggest rebound and growth in U.S. stocks' history. Meanwhile, the trader in US stock market also surged in 2020, which means both individuals and entrepreneurs' enthusiasm for stock investment is unprecedentedly high. Investors try to find and research appropriate investment strategies and finance models to predict share prices.

Theoretically, the stock price in the market is affected by a variety of factors, including changes in the psychological and behavioral status of investor and the country's macroeconomic factors. And investors will take the financial statement data by listed companies more into account. The investor's expectation for the company financial performance will directly affect the company's pricing in the market.

When predicting the stock price trend, there are two main direction of stocks investment analysis that is Fundamental analysis and Technical analysis. (Thomsett, 2006) Technical analysis pays attention to history stock price and trend graphs. However, whether it is Fundamental analysis or Technical analysis, it is believed that the factors affecting the stock price in the market are diversified. In the variety of influence factors, how to identify and organize and apply. And on the other aspect those provide the basis for stock value estimation and investment strategy, which has been very popular in investor research. (McKinsey, 2019)

From asset selection theory to capital asset pricing model to Ross arbitrage pricing model, the paradigm of investment analysis theory has evolved from the individual influence factor to a multi-factor model analysis, which makes the investment strategy of the securities market more

rational and the resource allocation function more perfect. It drives the rapid development of stock markets in Europe and the United States, but also make stock investment analysis and research into an unprecedented period of prosperity. And a variety of stock investment analysis model research and development and investment practical, but also for quantitative investment provides a stage and broad prospects for development.

Quantitative analysis is different from fundamental analysis and technical analysis, but it can combine the advantages of the two. By quantifying the technical graphical trend, and adding the fundamental data, it belongs to the quantitative analysis category. Quantitative analysis can effectively combine the two analytical methods to meet the dual requirements of stock selection and time selection in the process of securities investment analysis. Among the many quantitative investment models, the multifactor model is considered by most studies to be a classic model that fits the current securities market operation. Among them, DCF model has become a hot issue in the research of brokers and investment funds. moreover, various multifactor models that extend and expand on the basis of this model are also being widely used in various quantitative financial products.

1.1 About Nordstrom (JWN)

Nordstrom manufactures and trades clothing, shoes and accessories. It operates through the following business units: Retail, Credit and Corporate/Other. The retail department manages brick-and-mortar stores and online stores. The credit department offers customers a range of payment options. The company/other sector includes sales return reserves, expenses, and assets. Founded in 1901 by John W. Nordstrom, the company is headquartered in Seattle, Washington. The company has 252 stores in 34 U.S. states, 117 of which are full-line stores and 132 are discount stores. Nordstrom's competitors across the U.S. include luxury retailers Bloomingdale's, Rhodes and Taylor, Neiman Marcus and Saks Fifth Avenue. Nordstrom has the largest number of stores and the widest geographical distribution compared to its competitors.

Nordstrom's (JWN) was first taken to public on NASDAQ in 1971. Then it was transferred to New York Stock Exchange (NYSE) in 1999. Normal investors are able to trade Nordstrom

(JWN) common stock on NYSE which is most liquid stock market in the world. And also, JWN is listed on S&P 500 index which are used to measure stock market performance.

1.2 Research motivation

This thesis hopes to combine several financial quantitative models' advantages, as a long-term stock price forecasting strategy. It can also cover the impact of event, stock graph technology on share prices, in order to improve the scientific quantitative capability in stock price estimation; Analysis of the possibility of financial fraud based on calculations of the Beneish model, based on financial and market data; From both Dividend and cash flow, JWN stock price are estimated by using the Discounted cash flow (DCF) models; The financial situation of JWN is assessed through Ratio analysis to assist investors in making investment decisions.

From the research content in this thesis, the financial data disclosed by JWN is the main source of information, which will be used to estimate stock prices. And also, It will be an important basis to carry out stock investment analysis. The value of a stock exists because the stock represents the capitalization of dividends, and when there is still a positive present value after the continuous cash flow discount, the stock has value. The financial data disclosed by listed companies play a role in the above process, which is to change the expectations of market participants about the company's future sustainable cash flow, and then affect the current value of the stock. In other words, the financial data disclosed by a listed company can affect people's expectations of its future operating conditions, which directly affect the future level of dividends, and the future level of dividends of listed companies is expected to affect the current share price. In this way, the financial data currently disclosed by listed companies are closely linked to changes in their stock prices. However, the explanation of stock price fluctuations by a single financial information is limited, and it is difficult to find out the intrinsic relationship between the financial index of listed companies and the stock price. By combining fundamental, technical analysis and quantity analysis, this thesis will take multi-factor to estimate JWN stock price.

1.3 Significance of the study

While quantitative analysis is gradually gaining the favor of investors, multifactor model has also been developed rapidly in the practical application of capital market. On the basis of the

continuous improvement of the effectiveness of the capital market, the financial data disclosed by listed companies are becoming more and more perfect, which makes the stock price and the fundamentals of the enterprise more and more closely linked. Therefore, how to use statistics, finance and other principles, through the computer's efficient processing advantages, a large probability to capture the financial dynamics of listed companies, to identify what changes have taken place in the operating conditions of listed companies, has become a growing concern of all types of investors. Therefore, the multifactor quantitative model has some theoretical and practical significance in the current stock market.

1.3.1 Theoretical significance

The model of this thesis is combined with a variety of quantitative models, through the analysis of the model to understand the price movement of JWN stocks. But also conducive to multifactor model in the capital market for future in-depth study. The quantitative model of this thesis provides a good tool for verifying the validity of financial information in stock market. In addition, the model applied in this thesis also has good compatibility. Not only can deal with financial information, but also can be included in the subsequent analysis of market technical information and quantitative factors. At the same time, it is ensured that different kinds of data information do not interfere with each other. This is of some significance for the follow-up related research.

1.3.2 Practical significance

Quantitative model is the most widely used stock price forecasting model in the stock market at present. It has great significant to study those models and it can benefit all kinds of investment institutions to better understand the U.S. stock market, which will improve the overall returns of investors. In addition, the continuous in-depth study of quantitative models can also promote the overall promotion of investment theory system. It is conducive to promoting the development of investment institutions and improving the effectiveness of the market. Those models used in this thesis should make investors beware of risk management and stock price vitality. It has practical significance to enhance the overall stability of the market and reduce the investment risk.

2 Objectives and Methodology

2.1 Objectives of thesis

The main goal of this thesis is to estimate the future value of Nordstrom (JWN) stock that is indexed on NYSE. Furthermore, Nordstrom (JWN) as an American luxury department store chain will be compared with its international counterparts. Markets, where these companies operate, will be evaluated. Fundamental and technical factors that influence current and future value will be determined. In order to achieve the goal, market indicators, trading strategy, and risk management will be considered which affect Nordstrom (JWN) stock prices.

2.2 Methodology

In the thesis, there will be two main parts Theoretical analysis methods and Practical analysis methods...

- The Theoretical analysis will be included: Nordstrom company intro, definition of Review JWN stock history price performance, Fed monetary policy effect on stock.

- The Practical analysis will be included the following analysis: U.S macroeconomy analysis, Beneish model which indicates the earnings report reliability, and Discounted cash flow (DCF) which estimates stock price.

All the Nordstrom (JWN) secondary data will be collected from previous Annual Financial statements, data tracking tool (Yahoo Finance, Finviz, Bloomberg) S&P 500 index, and New York Stock Exchange.

3 Literature Review

3.1 Risk management on Financial statement fraud

Generally speaking, the reliability of enterprise financial statement information depends on the earnings report quality. We need to judge those financial statement whether this information is useful for our investment decisions. Also analyze whether this information is reliable or not. In the earnings quality analysis, the most important concern is whether there is earnings manipulation. If the company has earnings manipulation behavior, it will significantly change the profitability of the enterprise. (Rezae, 2005) It will mislead investors' judgment. In fact, it also presents a serious challenge to the creditworthiness of the whole stock market information system.

Increasing losses or falling earnings growth are a negative sign for any listed company. Therefore, company managers have the incentive to adjust the report to make their financial data look better. This is inevitable, as there is the famous Enron scandal. For most investors, they have to be very sensitive about financial fraud. (Hogan, 2008) In a 2001 survey about CFOs of listed companies, Dichev found that 20% of respondents admitted that they intentionally manipulate their company's earnings. (Dichev., 2002) This means that for investors, the ability to accurately identify earning manipulation is related to the reliability of fundamental analysis conclusions.

3.1.1 Financial fraud concepts

3.1.1.1 Earnings management

There is a step-by-step relationship between earnings management and financial fraud, which can be describe as opportunistic. Financial fraud is an extreme form of earnings management, which is illegal. Academics generally agree with Dichev's opinion on the definition of earnings management: "Management changes the original financial report by cleverly and purposefully applying rules in the process of building transactions or preparing statements." (Dichev I D,

2013) This leads to the results misjudgment of business management by the investors of the report. Or it will make influence on the contractual results in the financial report.

The characteristics of earnings management:

- (1) the implementing body is the enterprise managers,
- (2) the object includes accounting and non-accounting methods, such as finding loopholes in the accounting system, independent choice of advance accounting principles, etc.,
- (3) Earnings management is within the scope of laws and accounting standards. Earnings management might be unreasonable, but not illegal. This is clearly different from financial fraud.

3.1.1.2 Earnings manipulation

The consequences of "Earnings manipulation" and "Earnings management" are that financial information couldn't reflect the actual business situation and business value. This makes investors misjudge. But there is a clear difference between the two.

Earning manipulation means the violation implementation of accounting standards. But in fact, they do not report the correct earnings. For example, company does not follow the provisions to identify income, assets, liabilities, costs and other items. So it could cover the false part. In other words, earning manipulation includes both regulatory areas of earnings management, and also includes the earning fraud which violates accounting standards and company law. (Aprillia, 2015)

3.1.1.3 Accounting Information Distortion

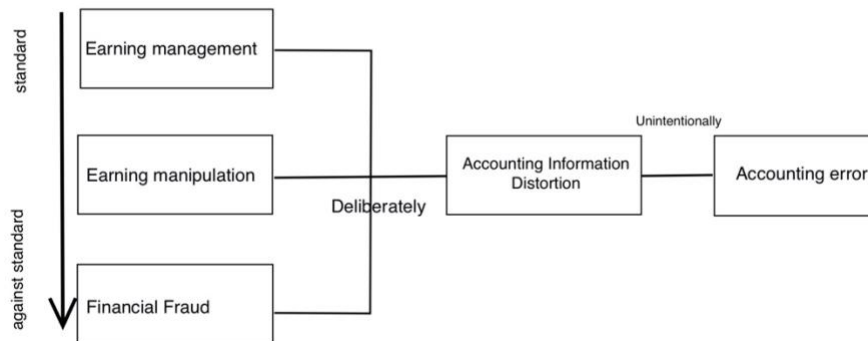
Accounting Information Distortion is: Manager wants to modify the statements, not according to the regulation to change accounting policies, or false, incomplete information disclosure. It will cause accounting information distortion. (Nigrini, 2017)

The premise of accounting information distortion is that there are defects in management, finance, technology and so on, which lead to fail to prevent errors and loopholes in the financial statements. In terms of its relationship with financial fraud and earnings management, earnings

management is a speculative distortion of accounting information within the framework of regulations. Financial fraud is directly out of the compliance framework caused by accounting information distortion. Both subjectively are deliberate.

The accounting information distortion is not all caused by the deliberate manipulation of financial data. And unintentional accounting errors will also cause the distortion of accounting information. Some enterprises will re-make earning report to correct errors when they find errors in the improper application of accounting principles, or miscalculations in previous reports.

Figure 1 Financial Fraud relationship



3.1.2 Definition of financial fraud

The concept of financial fraud has gone through a process of continuous improvement from scratch to accrual definition.

In 1987, the COSO organization (the U.S. Anti-False Financial Reporting Commission) issued *the relevant provisions on fraudulent financial reporting*: financial fraud means the management of enterprises through deliberate fabrication, tampering and omission of fraud. The preparation of financial statements is seriously misleading infringes which will harm the interests of investors. In 1993, the ACFE Association (Association of Certified Fraud Examiners) defined financial fraud as the premeditated reporting of financial data or business conditions by management which mislead report users into making bad decisions and ultimately to the benefit of the public. In other words. Financial fraud refers to the intentional violation of the principle of

authenticity by the actor in order to obtain improper benefits. It results in false reflection of the financial statements. Specifically, it contains the following acts:

- (1) falsifying or tampering with the records or documents on which the financial statements are prepared;
- (2) intentionally concealing, deleting, under reforming, fabricating transactions or other matters;
- (3) Intentional misuse of improper accounting policies.

There are two points of the above financial fraud. First, financial fraud focuses primarily on financial statements. The beneficiaries of the fraud are the company itself. This does not include insider trading or short-term trading as private profit-making. Nor does it include irregularities such as market manipulation that go beyond financial fraud. Secondly, financial fraud means deliberate violations caused by subjective behavior. Does not include accidental errors caused by mistakes.

3.1.3 Beneish model

In the Detection of Earnings Manipulation, US professor Beneish proposed a multi-factor financial fraud detection model. It can detect corporate financial fraud, distinguish between profit-manipulating enterprises and non-profit-manipulating enterprises. It is the M-score model. (Beneish, 1999)

The researchers selected 74 companies from 1982 to 1992 as samples of fraud. Forty-nine of them were investigated and noted by the U.S. Securities and Exchange Commission for violating GAAP (U.S. General Accepted Accounting Principles). The other 25 were fraudulent companies exposed by the news media during the period. These 25 companies are similar to the previous 49 companies in terms of size, profitability, asset liquidity, sales growth and financial leverage. The authors compared 2,332 companies as non-fraudulent samples in the CompStat database by industry and annual standards. The author explores and summarizes the significant characteristics of companies that have experienced financial fraud using fraud samples from

1982 to 1988 and non-fraud samples matched by conditions. A model for detecting profit-manipulating enterprises is estimated. The accuracy of the model was evaluated using reserved samples from 1989 to 1992.

Beneish believes that financial data makes difference to identify financial fraud. He found that financial fraud was often caused by manual manipulation which resulted in inflated revenues or cost reductions. Therefore, there is a systematic relationship between the probability of profit manipulation and financial variables. Some key variables can reflect earnings management level. The authors also found that financial fraud companies largely inflated their earnings by improperly reporting revenue, inflating inventories, or improperly capitalizing costs. The author also pointed to the different effects of sales growth. Because the basic characteristic of the fraud enterprise is that there is a very high sales growth before financial fraud exposed.

After research, the author proposes that when the enterprise

- (1) Unusual increase in accounts receivable;
- (2) There is a change in gross margin;
- (3) the quality of assets is reduced;
- (4) Abnormal growth in sales;
- (5) When accrued profits rise, the possibility of fraud in the enterprise increases. (University, 2016)

Based on this, the author selects eight financial indicators as variables to build an M-score model to identify fraud. It gives financial data to listed companies. Seven of these indicators are in the form of year-on-year indices. It aims to identify the extent of financial distortions resulting from fraud by comparing data or indicators for the year and year in which the fraud occurred. If the M-score score is greater than -1.78. indicates that the company is more likely to commit financial fraud. The author tested that the accuracy of the M-score test for financial fraud was as high as 76%. (Beneish, 1999)

The M-score metric selection revolves not only around the ledger account itself that fraud will take advantage of. It also takes into account financial indicators that investors and economic analysts will check. (Nguyen Huu Anh, 2016) In the Detection of Earnings Manipulation, Beneish points out that M-score focuses not only on financial fraud itself, but also on management tendencies and intentions of managers when they commit fraud. (Beneish, 2013) It can reveal the short-sightedness of financial fraud. M-score can therefore be seen as a beacon for measuring the future state of the business. In other words, M-Score is an effective early warning, screening, and detection tool for financial statement users. (Chem, 2006)

3.1.4 Comparison and analysis of financial fraud identification model

Previous scholars have made some achievements in studying the financial fraud identification model. They explore important correlation indicators of financial fraud from different perspectives. And systematically established for investors, regulators, scholars directly use the financial model. The following models are similar to the M-score model recognition. Understanding these models is critical to understanding early warning and identification mechanisms for financial fraud.

(1) Altman's Z-score model

The Z-score model developed by Altman is one of the commonly used enterprise financial early warning models. Altman believes that the forecast direction and ability of different financial ratios often vary widely. Previous models of single-variable analysis were too isolated. the multiple discriminant analysis (MDA) was the most appropriate statistical tool. (Ofori, 2016)

Altman uses step-by-step pluralism analysis to develop a functional formula that contains five financial indicators:

- Working capital/total assets.
- Retained earnings/total assets.
- Earnings before interest and taxes/total assets.
- Market price of equity/total debt book price.

- Operating sales/total assets.

This model will judge the possibility of bankruptcy by Z-score. If the Z-score > 2.99 , it is considered to be in good working condition and it has very small chance to be bankrupt. If the Z-Score < 1.81 , it is considered has high chance to bankrupt. (Adrian R. Bell, 2013)

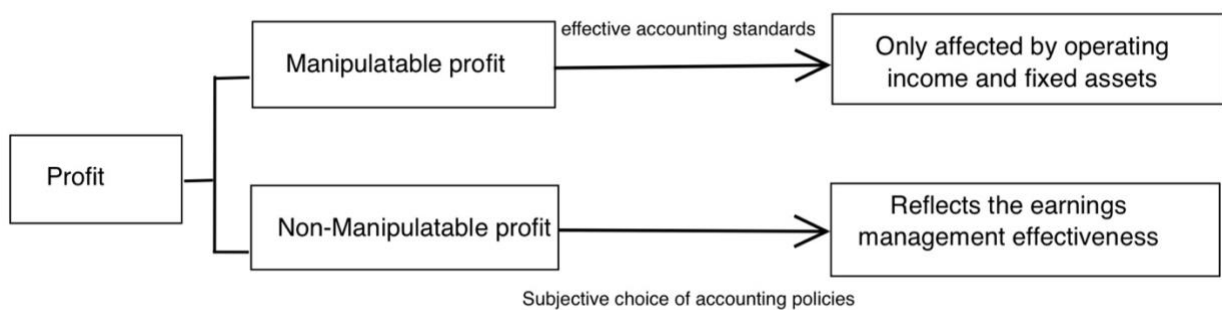
The prediction accuracy of the Z-score model is limited to the short term. Its prediction effective performance for the year before the bankruptcy of the enterprise is more than 90%. But the accuracy of forecasts for the first two years of bankruptcy has plummeted to 70%. Three years or more lost the significance of detection. And if the Z-score is between 1.81 to 2.99, it lost its significance. (Altman., 2014)At the same time, the model can only predict the possibility of bankruptcy. But it is not functional for the enterprise that maintains "non-bankruptcy" by financial fraud.

(2) Jones model

Jones divides defined profits as manipulative and non-manipulative. Among them, the non-manipulative accrued profit is only affected by changes in operating income and depreciation of fixed assets, due to the stable accounting system.

Therefore, the assumption of the Jones model is that both the main business income and fixed assets are non-manipulative. The argument is set to the increment of operating income and the original value of fixed assets. In this way, the multilinear regression equation of the total accrued profit is constructed. (Ahmad, 2010; Adrian R. Bell, 2013; Adrian R. Bell, 2013)

Figure 2 Jones model theory



The Jones model is able to take a general view of the extent of financial fraud by calculating earnings management. However, the model has some limitations. First, the model assumes that all changes in main business income are non-manipulative. It does not take into account the fact that management can influence the book value of operating income through earnings management practices such as credit sales. Second, by default, the model only changes in sales revenue and fixed asset levels will have an impact on the calculated profit. It does not take into account that some variables unrelated to earnings management also have an impact on the total accrued. (Ali, 2010) Therefore, the accuracy of the prediction is not very accurate.

3.2 Stock pricing model

3.2.1 DCF model

In terms of the relationship between capital and income, Irving Fisher's book "The Nature of Capital and Income" published in 1906 and "Interest Rate: The Relationship between Nature, Decision and Economic Phenomenon" published in 1907 systematically discussed the issue of value origin and the relationship between capital and income. And the general framework for capital value assessment was initially formed. (Fisher, 1906) (Fisher, 1907)

In terms of capital budgeting, Irving Fisher (1930) notes in his book *The Theory of Interest*: the source of value is the expected cash flow from a company's investment projects. The value of the company is achieved by discounting the future cash flows of the investment project at a discount rate that matches the risk. This valuation technique creatively gives the relationship between future expected cash flows and current investments. It is considered to be the best way to make a capital budget.

Based on the relationship between capital structure and company value, Modigliani-Miller (1958) created the famous MM theory. In its article, it is highlighted that in uncertain conditions and circumstances, the company's expected future earnings are random variables that will match a distribution. It has uncertainty. In a fully competitive capital market environment, companies do not have optimal capitalization structures. Because this approach will not have a profound impact on the direction and process of the company's investment and financing. Nor can the value of the company determine the company's various capital activities. This theory explores

the relationship between the company's capital structure and the company's value in an innovative way.

In estimating the discount rate, William Sharpe (1964) further developed the modern portfolio management theory created by Harry Markowitz (1952) into a capital asset pricing model (CAPM). And use this model to calculate the cost of equity capital. The CAPM model refers to the concept of system risk. It gives the elastic absorption relationship of a single asset relative to systemic risk. The proposal of this model lays the foundation of economic theory for determining the discount rate. It solved the dilemma that the scholars could not reasonably estimate the discount rate.

In the confirmation of company value, Tim Koller, David Wessels and Marc Goedhart's book *Valuation: Measuring and Managing the Value of Companies* makes it clear that the source of corporate value is cash flows from future expected operations. (M Goedhart, 2010) The size of the value of the business depends on the expected future earnings situation rather than the historical gains that have occurred. Thus, the theoretical model of the valuation of the company's value is constructed. That is, the value of the company is the sum of the expected cash flows in the future after discounting at the discount rate matched to the risk.

3.2.2 Other traditional enterprise value assessment models

3.2.2.1 P—E ratios

(1) Definition

The price-earnings ratio is an important indicator of the company's stock returns and risks. This is reflected in the ratio of the market price of the company's stock to the company's after-tax earnings per share. (S, 1975)

$$P/E = \frac{\text{Share price}}{\text{Earnings per share}}$$

(2) The P/E ratios advantages and limitations.

When estimate company value, P/E ratio advantage is that it is easy to calculate. As long as a comparable company exists in the market, it can quickly measure the value of the company being evaluated. (Tamplin.com, 2020) This approach is particularly effective for companies with large numbers of comparable asset transactions in capital markets.

The disadvantages of P/E valuation are also obvious. Most of the application of P/E ratios is based on the existence of comparable companies with comparable assets. In real capital markets, however, this is hard to satisfy. This makes the application of price-earnings ratio has certain limitations. And because P/E valuations are based on other comparable companies. The results of the calculations are relative. Therefore, compared with other models, this method is less accurate in predicting the company's value assessment results.

3.2.2.2 Option pricing model

(1) Definition

In the 1970s, Scholes and Black proposed an option pricing model. The model shows that the past changes and evolutions of variables are not relevant to future predictions. Only current valuations are relevant to future projections. The model shows that the determination of option price is very complicated. Risk-free interest rate levels, contract terms, delivery prices, and stock current prices all have an impact on the full range of prices. (Scholes, 1970)

(2) Option pricing model advantage and limitation

Compared with other company value evaluation models, the option pricing model takes full account of the value of investment opportunities and options arising from the company's investment activities. (Modigliani, 1975) It broadens the thinking of the decision-making level of the company on the choice of investment strategy. It makes the evaluation price of the company's value more reasonable, and meets the needs of the company's decision-making.

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3.3 Summary of Literature

The above financial early warning models have different emphasis. The model construction method is not comprehensive, there are some problems such as insufficient support theory, missing variables and estimation deviation.

In the example of Z-score, the model is primarily used to predict the possibility of bankruptcy. But there is limitation for companies that rely on financial fraud to adjust profits and maintain performance. Moreover, the Z-score model also has the limitation of short prediction validity period and unrecognizable blind spot.

The Jones model and the modified Jones model are most widely used in the field of earnings management. However, the classification methods of these two models lack theoretical basis. There is also a lack of theoretical basis for the establishment of a linear relationship between accrued profits and factor variables that may cause earnings management.

In addition, it can fix the questions such as "What are the changes in accrued profits without earnings management" and "what are the specific factors affecting accrued profits". Neither model can accurately measure the degree of earnings management. The role is even more limited for the broader level of financial fraud.

In general, none of the above models is as practical as the M-score model in identifying financial fraud. Moreover, the M-score model does not attempt to distinguish whether an enterprise has a manipulative accrual. Instead, look directly for companies that violate generally accepted accounting principles (GAAP) based on the company's financial position.

Through the previous scholars' research, it is confirmed that the enterprise value is the sum of the expected cash flow in the future after discounting at the discount rate matched with the risk. The confirmation basis of discount rate is to determine the cost of equity capital through the CAPM model. Based on the research of scholars, the theory of enterprise value valuation is basically formed. It identifies the theoretical basis for later scholars to evaluate the value of enterprises using DCF model. (Rosenbaum & Pearl, 2013)

4 Theoretical part

4.1 Stock market

4.1.1 S&P500

4.1.1.1 S&P 500 concept

The S&P 500 Index is a stock index that records 500 publicly traded companies in the United States. The stock index was created and maintained by Standard & Poor's Financial Services LLC. Companies listed on S&P 500 also traded on major U.S. exchanges such as the New York Stock Exchange and Nasdaq. The S&P 500 index contains more companies than the Dow, so the risk is more spread and reflects broader market changes. (Wright, Baker, & Chernoff, 2014)

The S&P. 500 index is made by Standard & Poor's Financial Services LLC in 1957. The initial component consisted of 425 industrial stocks, 15 railroad stocks and 60 utility stocks. Beginning on July 1, 1976, its components were converted into 400 industrial stocks, 20 transportation stocks, 40 utility stocks and 40 financial sector stocks. (investopedia, 2021)

It is calculated using a weighted average method. Based on the number of shares listed, it is weighted according to the base period. Compared with the Dow Jones Industrial Average Stock Index, the S&P. 500 index has the characteristics of wide sampling, strong representation, high accuracy and good continuity. The S&P. 500 index is widely regarded as an ideal target for stock index futures indicator.

The S&P. 500 index plays an important role in the capital markets. Since 1860, the S&P. 500 index has played an important role in building market transparency. The various investment references published by Standard and Poor's Financial Services LLC are based on an important purpose: "Investors have the right to know".

Over the past century, financial markets have become more and more complex. Industry insiders eventually decided that the information on the S&P. 500 index was trustworthy. The S&P. 500 index has an independent, rigorous analysis of its investments in stocks, bonds, mutual funds, etc. The important perspectives, analytical perspectives, financial news and data provided by the S&P. 500 index have become a major part of the global financial base.

4.1.1.2 S&P 500 history performance (2000-2021)

The tech bubble of 2000 brought a wave of shorts. The shorts lasted until 2010, when both the Dow Jones and the S.P. 500 hit their highest in 2007. But the Nasdaq was far from its 2000 highest point. (Wells & Stuebner, 2011)

In 21 years, the market has experienced two severe bubbles. The first was the tech bubble of 2000 and the second was the Subprime mortgage crisis of 2008. (Jones, 2010) After the 2008 financial crisis, the next bull market for the S&P. 500 index began. But since the COVID-19 outbreak in 2020, the U.S. stock market has experienced four circuit breakers. The S&P. 500 index is down 30% in March 2020. Later, through a series of monetary policies by the Federal Reserve, U.S. stocks reached new highs. (Finance, 2021)

Figure 3 S&P 500 history performance (2000-2021)



Source: Yahoo Finance

4.1.2 Nordstrom (JWN)

4.1.2.1 Introduction

Nordstrom stock code is JWN. Nordstrom was founded in Seattle in 1901 and is a hundred-year-old name in the United States. It gradually developed from the original shoe store to department stores, which sales today's main fashion clothing, bags, and beauty skin care products, perfumes and household items and so on. In addition to its luxury brand options, Nordstrom also has a number of fashion brands that cater to millennials. As well as some high-quality new brand products. Whether customers like high-end luxury goods, the latest season trends, or cost-effective affordable goods, Nordstrom can meet the needs of different groups of people. Has been widely loved by middle-class families.

Nordstrom's (JWN) was first taken to public on NASDAQ in 1971. Then it was transferred to New York Stock Exchange (NYSE) in 1999. Normal investors are able to trade Nordstrom (JWN) common stock on NYSE which is most liquid stock market in the world. And also, JWN is listed on S&P 500 index which are used to measure stock market performance.

4.1.2.2 JWN stock history performance (2000- 2021)

In 21 years, JWN has experience Subprime mortgage crisis of 2008 whose stock price drop significantly from 54\$ to 12\$. After the 2008 financial crisis, the next bull market for JWN began. Its stock price has been increasing constantly in the next 11 years. However, since the COVID-19 outbreak in 2020, the U.S. stock market has experienced four circuit breakers. Nordstrom as the retail industry, his most of business are happening off-line. They have to suffer revenue decrease. Because of that, JWN stock price has to be under great sell-off pressure. But JWN stock price bounce back, when there is vaccine. (Yahoo, 2021)

Figure 4 JWN stock history performance (2000- 2021)



Source: Yahoo Finance

4.2 JWN Business during Covid-19

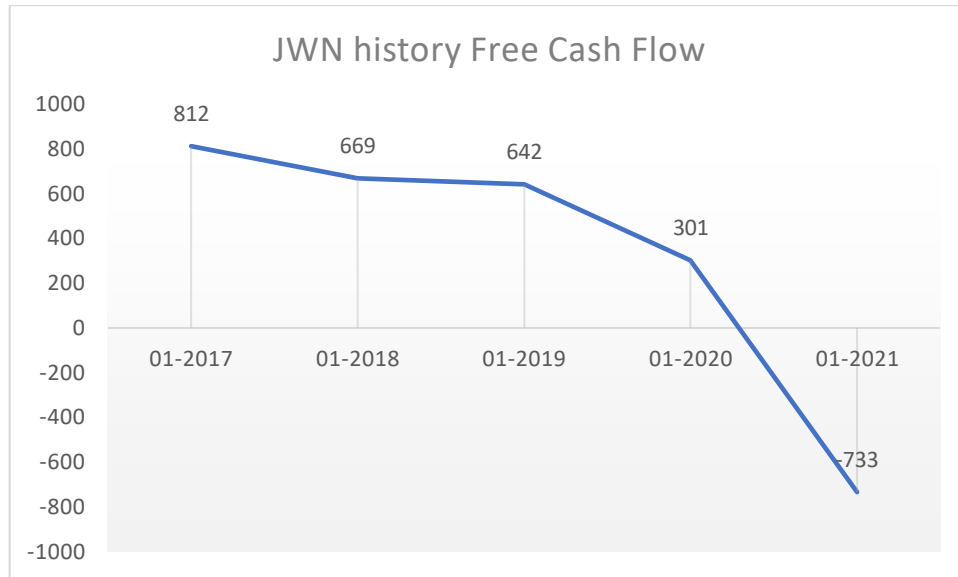
4.2.1 Revenue and profit suffer the decreasing in short-term

The pandemic has a direct impact on retail entity store's revenue. Restaurants, shopping centers, department stores had to remain closed, because of restriction. It was resulting in fashion luxury goods, sports products, and other products experiencing consumption frustration. there were some JWN offline entity stores that continue to open during the pandemic.

However, the flow of people is seriously down. Fixed operating costs such as labor, rent, inventory, etc. occur normally. And bank loan interest expenses put pressure on cash flow performance. Operating profits will fall sharply, directly challenging the survival of the company. On the other hand, online shopping platforms and O2O home-to-home services have seen a sharp increase in orders. However, factors such as limited price increases and high service

standards have suppressed profits. It will present a situation that profit increasing speed are suffer.

Figure 5 JWN History Free Cash flow (NordstromPress, Annual Report , 2021)



Source: Nordstrom annule report between (2017-2021)

4.2.2 Retail competitive market segmentation

The Covid-19 has prompted retail companies to move further online. At the same time strategically shrink the layout under the line. JWN wants to improve overall performance and efficiency. JWN's fragile offline brick-and-mortar stores have been hit hard. However, JWN has high gross margin products. (NordstromPress, Nordstrom annual report, 2021)

At the same time JWN ahead of developing online business. And strong brand cooperation to take advantage of the opportunity to expand market share. They acquire small and medium-sized shopping mall customers, talent, stores, suppliers and other resources. At the same time accelerate the acquisition and integration of small chains and independent brand stores in a business mode. JWN's overall supply chain builds a collaborative, syndical digital ecosystem. JWN builds relations with mall merchants, consumer goods suppliers, and channels to fight the pandemic.

From the perspective of the retail market, the development of market segmentation presents a strong Matthew effect. At the same time, the competition within the market segmentation will be intense. Competition is no longer the competition between individual enterprises, but the enterprises join the ecosystem of collaborative alliances. While building corporate relationship within the system, systematic competition is formed between ecological systems.

4.2.3 Supply Chain integration

Supply chain transportation capacity is limited due to pandemic restriction measures. It caused many results:

- Rising product procurement costs
- Insufficient supply of production.
- Delivery delays.

These affect the supply side. At the same time, increased consumer awareness of health and wellness, as well as increased demand for online products and distribution services, have led to the integration of supply chains. The trend of socialization, synergy and platforming is accelerating. The supply chain collaboration system has become a Stabilizer for the consumer retail industry.

In the future, JWN Supply chain manager will focus on product source procurement integration and logistics efficiency improvement. Community distribution, home distribution and consumption portraits, strengthen precision terminal services, access to accurate supply chain management system. In order to achieve accurate selection, low-cost high-quality commodity procurement, quality transportation, precision distribution and other empowerment, and enhance the terminal service experience.

4.3 U.S. Dollar Index (DXY) Analysis

The U.S. dollar index is an indicator that reflects the exchange rate of the U.S. dollar in the international foreign exchange market. It is used to measure how much the dollar exchange

currencies. It measures the strength of the dollar by calculating the exchange rate between the dollar and the selected currencies. (Bloomberg, 2021) Analysis of the trend of the dollar index can indirectly reflect changes in the competitiveness of U.S. exports and import costs. The appreciation of the dollar is good for the economy as a whole. It increases the value of the national currency and increases purchasing power. But it has also hit some industries. For example, the export industry. A stronger currency would raise the prices of export goods, causing exports to be unfavorable. As a result, the dollar index has a different effect on U.S. stocks market in different scenario.

4.3.1 Dollar Currency Function

Generally speaking, if the U.S. economy is strong, the dollar value will naturally increase. At the same time, if the U.S. economy grows strongly, the profits of listed companies will increase, and the U.S. stock market will continue to rise. In terms of the monetary properties of the dollar, the dollar and U.S. stocks should show a positive correlation.

4.3.2 Dollar Finance Function

Although the dollar's position in the currency has declined as economies around the world have grown. But it cannot be admitted that the dollar still occupies the most important position in the world's currencies. (Hoffman, 2010) Although the Bretton Woods system has disintegrated, its impact remains. Gold is still mainly pegged to the dollar which has the characteristics of risk-averse. The dollar naturally has this characteristic.

Moreover, the United States remains the world's most powerful economy. During a global recession, the dollar depreciates much more slowly against other currencies. This has attracted money rushing to buy, pushing up the dollar. When the global economy is in recession, global stock markets fall and the dollar rises. On the other hand, a rise in the dollar would lead to lower prices for dollar-denominated commodities. This could trigger a drop in profits for resource

companies. Triggered a decline in export profits. This will also indirectly trigger a decline in the stock market.

As can be seen from the trend of the US dollar in the box. The dollar index climbed in March last year when the global liquidity crisis hit. The dollar has become the first choice for safe-haven funds in financial markets. It wasn't until the Federal Reserve cut interest rates and overlaid quantitative easing that the dollar index fell. In the face of the big crisis, the market's choice also proves that the overall risk-averse properties of the dollar which cannot be ignored

Figure 6 U.S. Dollar Index (DXY) chart (YahooFinance, 2021)



Source: Yahoo Finance

Then the dollar and the U.S. stock market show a Negative correlation.

4.4 Financial fraud analysis base on Beneish model

Because of COVID-19, many traditional industries went bankrupt. Some companies have to use false financial reports to cover up their poor financial situation, in order to attract investors. Nordstrom, a traditional retail company, is doing impressively well in 2020. This article will use Beneish Model to check JWN possibility to be financially fraudulent.

4.4.1 M-Score significance

The Beneish model is a commonly used financial model in western financial markets. It measures a company's financial rationality by analyzing its financial metrics. To determine whether a company believes that the manipulation of earnings data, financial statements false phenomenon.

Nowadays financial markets are growing rapidly. The relevant legal supervision is getting better and better. The fraud of corporate financial statements is gradually improving. However, financial manipulation still exists throughout the world. In order to protect the rights and interests of investors and improve the efficiency of supervision, the Beneish model is very meaningful to test the validity of financial data of listed companies and the symmetry of market information.

The Beneish model was proposed in an article by M D. Beneish (1999). (Beneish, 1999) In this paper, a model for detecting profit manipulation is established. The variables of the model are used to capture possible results of profit manipulation or as a prerequisite for possible profit manipulation by the company.

4.4.2 M-Score logical

The author selected eight variables based on financial statement data. Mainly for the following three considerations or basis:

- First of all, the author considers some assumptions made in the academic and literature about the signals of the future prospects of companies-when companies have poor development prospects and face growth pressure, they are more likely to have the motivation to manipulate profits;
- Secondly, the author takes into account some variables based on cash flow and accrued profits;
- Finally, the author considers some variables derived from empirical research on earnings management based on contractual incentives.

$$\text{M-score} = -4.84 + 0.92 \times \text{DSRI} + 0.528 \times \text{GMI} + 0.404 \times \text{AQI} + 0.892 \times \text{SGI} + 0.115 \times \text{DEPI} - 0.172 \times \text{SGAI} + 4.679 \times \text{TATA} - 0.327 \times \text{LVGI}$$

- If $M > -1.78$, it indicates a higher probability of financial fraud, most likely a fraudulent enterprise
- If $M < -1.78$, the probability of financial fraud is low.

Some articles set the threshold to -2.22 when using M-score. However, the original author, Professor Beneish himself, did not endorse or use this threshold. He marked the model's split point at -1.78, not -2.22, under the M-score calculator on his profile. Therefore, the article follows the original author's model threshold of -1.78. (Wikipedia, 2021) The indicator is defined as follows:

(1) DSRI (Days' sales in receivables index)

The Accounts Receivable Index (DSRI) means the ratio of accounts receivable to operating income in the year in which the fraud occurred to operating income to accounts receivable as a percentage of operating income in the previous fiscal year. Measure whether accounts receivable and operating income are balanced and unusual changes are made in two consecutive years. In general, accounts receivable from companies that are operating normally are stable. If there is a sudden and substantial increase in the proportion of accounts receivable, it may be due to a competitive environment and sales pressure. Businesses have to adjust their sales and credit policies. This is often accompanied by early recognition of income.

Thus, the higher the DSRI index, the greater the likelihood that the firm will deliberately increase revenue and profits by manipulating accounts receivable items, i.e. the greater the likelihood of financial fraud.

(2) GMI (Gross margin index)

The Gross Margin Index (GMI) uses the ratio of gross margin in the year before the fraud occurred to gross margin in the year in which the fraud occurred. If the ratio of gross margin to two periods is greater than 1, it indicates that gross margin has a downward trend. (EDWARDS, 2006) This means a weakening of corporate profitability. This negative signal also implies an increase in corporate intentions to whitewash profits. That is, the likelihood of financial fraud increases.

(3) AQI (Asset quality index) :

The Asset Quality Index (AQI) means the ratio of non-current assets to total assets excluding real estate, plant and equipment (PP&E) in the current period and the current period. Measure the asset portion of uncertain future earnings and the risk of asset realization that a business may face. If the AQI index is greater than 1, the asset quality of the enterprise decreases. It also means that the risk of asset realization is increased. It is very likely that enterprises will increase cost deferral through cost capitalization and other means, and the possibility of profit manipulation will increase.

(4) SGI (Sales growth index) :

The Sales Growth Index (SGI) is the ratio of sales revenue for the year in which fraud occurred to sales revenue for the previous year. Sales growth is not the same as profit manipulation. But behind the rapid growth is likely to be a "human" factor. We know that when a company has higher growth. In order to maintain or attract more investment, companies generate higher capital needs. Companies also pursue higher financial standards. Sales revenue is an important

measure of a company's growth that all investors will be concerned about. "Management under performance pressure is also more motivated to manipulate profits by using sales revenue as a project."

(5) DEPI (Depreciation index):

Depreciation Index (DEPI) refers to the ratio of depreciation rate in the previous year of fraud to depreciation rate in the year in which fraud occurred. Measure whether an enterprise is depreciated within a reasonable range. A depreciation index greater than 1 indicates a decrease in the depreciation rate of the enterprise. It is likely that the enterprise will artificially "dilute" the depreciation expense per period by extending the life of the asset. to reduce the profit offset per period. This is a more common and clumsy and obvious profit manipulation.

(6) SGAI (Sales, general, and administrative expenses index):

The Sales and Administrative Expenses Index (SGAI) means the ratio of sales and management expenses to operating income in the year in which the fraud occurred and in the year before the fraud occurred. The reasonableness of measuring a company's expense data. and the possibility of manipulating profits by reducing costs. If SGAI is greater than 1, it indicates an increase in sales and administrative expenses. This is undoubtedly a negative sign of a poor outlook. At this point, in order to effectively control costs and eliminate investor concerns. Management is also more motivated to use tactics to whitewash statements.

(7) LVGI (Leverage index):

The leverage index (LVGI) means the ratio of the balance sheet ratio in the year of fraud to the ratio of assets to liabilities in the year before the fraud occurred, and measures the change in the debts a company is subject to. If LVGI is greater than 1, it indicates an increasing trend of financial leverage. That is, the financial risk borne by the enterprise increases. This increases the risk of default. As a result, companies are more likely to take fraudulent measures to avoid default.

(8) TATA (Total accruals to total assets):

Most of the accruals are calculated using data differences for the year in which the fraud occurred and the previous year. It can measure the quality of the meter and the quality of the surplus. TATA measures the movement of non-monetary current assets and current liabilities. Accrued items are often used to assess the extent to which management manages surpluses. Thus, accrual factors can be considered important reference indicators for financial fraud. In general, the higher the TATA, the higher chance of fraud. (Investopedia, 2021)

In summary, M-Score can be regarded as a financial fraud investigation model. The evaluation system of the financial situation of an enterprise. It can also be used as a financial early warning indicator.

- In terms of the composition of each indicator, DSRI, AQI and TATA are balance sheet indices; SGI and GMI are income indices; SGAI and DEPI are expense indices; LVGI is a leverage index.
- In terms of the function of each index, the four indices DSRI, DEPI, AQI and TATA are used to measure financial fraud caused by management's earnings management actions outside the legal framework; The remaining GMI, SGI, SGAI and LVGI indices are used to measure management's motivation and tendency to manage surpluses and manipulate profits.
- Among them, DSRI focus on fraud that uses accounts receivable accounts to inflate profits. AQI and DEPI focus on fraud such as capitalization of expense violations, under-billing, and late recognition fees.

At the same time, the indicators selected by M-score are all made up of ratios. This takes into account the checking relationship between accounting accounts. If the enterprise secretly manipulates one of these indicators, the rest of the indicators will change. The equilibrium relationship between the indicators will be broken. This kind of indicator composition can prevent the enterprise from "modifying the ledger" according to the fraud monitoring model to a certain extent.

4.5 DCF model

DCF is an absolute valuation method in which the free cash flow that an asset can generate in the future (usually forecasted for 5-10 years) is discounted at a reasonable discount rate as the weighted average cost of capital (WACC) to obtain the value of the asset. If the discounted value is higher than the current price of the asset, it is profitable to buy. If it is below the current price, the current price is overvalued and needs to be avoided or sold. (Investopedia, DCF definition, 2021)

DCF is theoretically impeccable valuation model, especially for industries with high cash flow forecasts. Such as utilities, telecommunications, etc. However, DCF valuations are less accurate and credible in industries with frequent cash flow fluctuations and instability, such as technology. In real-world applications, DCF is less likely to price stocks as the only valuation method and simpler relative valuation methods such as P/E ratios are used more frequently due to the extreme difficulty of accurately forecasting cash flows over the next decade. DCF is generally regarded as the most conservative valuation method, and its valuation results serve as the bottom line for the target price. For investors, whether or not they end up pricing stocks at that valuation, a DCF model can help create a quantitative grasp of the long-term development of the companies they invest in.

4.5.1 DCF significance

In investment transactions, investors need to make a reasonable judgment on the valuation of enterprises and predict future returns. Companies and investment banks need to properly assess the value of the enterprise quoted to the buyer. However, high deviation from the actual value of enterprises, nor too much underestimation of enterprise value.

Cash flow discount model, as a classic way of project valuation, can provide a reference for enterprise valuation. Through the adjustment of model parameters and assumptions, the valuation of different business conditions can also be prejudged. Investors may also bet on the

income and profits predicted by the DCF model, which can be used as an important basis for investment negotiations between the two parties.

4.5.2 DCF model process

(1) Predicting Free Cash Flow to Firm (FCFF)

The DCF model is based on financial forecasting of an enterprise. It requires the measurement of free cash flow to firm (FCFF) based on financial forecasts. (Investopedi, 2021)

$$FCFF=(EBITDA \times (1-TR))+(D \times TR)-LI-IWC$$

where:

EBITDA= Earnings Before Interest, Taxes, Depreciation, and Amortization

D=Depreciation

TR=Tax Rate

LI=Long-term Investments

IWC=Investments in Working Capital

Free cash flow does not reflect the impact of financing activities. So, calculating free cash flow does not need to add or plus cash flow associated with financing activities. For example: dividends, new equity, repayment of loan interest, etc.

The cash flow discount method is very sensitive to the calculation of the final value, so care needs to be taken to ensure the reasonableness of the assumptions used to calculate the final value. (the suitable assumptions in the financial forecasting model). When forecasting cash flow in the last year of the forecast period, the assumption of forecast revenue and operating profit should reflect the level of the normal year. It should not be at the level of the peak or trough year of the business cycle. Fixed asset investment should also be at a more stable stage. (depreciation = expenditure)

(2) The weighted average cost of capital (WACC)

After obtaining the free cash flow of the firm, the cash flow is discounted according to the appropriate discount rate according to the characteristics of the company's industry. The discount

rate is generally weighted average cost of capital WACC, which is the method of calculating the cost of capital of a company according to the weighted average weight of the total capital source of all types of capital. (Investopedia, What is WACC, 2021)The WACC considers the cost of equity and creditor's rights, and can effectively evaluate the cash flow risk premium of the firm. Depending on the situation of the firm itself, it is normally between 10% and 20%.

WACC Formula and Calculation

$$\text{WACC} = \left(\frac{E}{V} \times Re \right) + \left(\frac{D}{V} \times Rd \times (1 - Tc) \right)$$

where:

E = Market value of the firm's equity

D = Market value of the firm's debt

$V = E + D$

Re = Cost of equity

Rd = Cost of debt

Tc = Corporate tax rate

Capital asset expected return is calculated by Capital Asset Pricing Model (CAPM).

$$E(R_i) = R_f + \beta_i (E(R_m) - R_f)$$

$E(R_i)$ = capital asset expected return

R_f = risk-free rate of interest

β_i = sensitivity

$E(R_m)$ = expected return of the market

Debt cost: Generally based on the company's current debt yield, such as bank loan rates, bond rates and so on.

The capital structure of the firm may change from year to year, depending on the firm's growth cycle. The forecast period begins with a high general debt ratio, high capital expenditure and low profit margins. Ideally, different WACC should be used each year to reflect changing capital structures and corporate values. However, this is a circular process. We need WACC to calculate

equity value and WACC to calculate equity value. In practice, the target debt ratio should be set. That is, the gradually reached debt ratio after 5-10 years or the industry average debt level.

(3) Calculate Terminal Value and Companies value

We will use the Perpetual Growth DCF Terminal Value method. Assumption that free cash flow increases at a constant growth rate each year after the forecast period. So we can predict future discounted FCF by those [formula](#):

$$EV = \frac{FCF_1}{(1 + WACC)} + \frac{FCF_2}{(1 + WACC)^2} + \dots + \frac{FCF_{n-1}}{(1 + WACC)^{n-1}} + \frac{FCF_n}{(1 + WACC)^n} + \frac{TV}{(1 + WACC)^n}$$

$$TV = \frac{FCF_n \times (1 + g)}{(WACC - g)}$$

- TV = terminal value
- FCF = free cash flow
- n = year 1 of terminal period or final year
- g = perpetual growth rate of FCF
- WACC = weighted average cost of capital

(CFI, 2020)

(4) Calculate the equity value

On the basis of enterprise value, minus liabilities with interests and excess assets. Then we can get Equity value of enterprise

- Liabilities with interests:

Mainly includes bank loans, bonds and so on. It does not include operating liabilities such as accounts payable, notes payable, and advances received.

- Excess assets:

It is an asset that does not generate income during the forecast period but now has value. Such as financial assets available for sale, long-term equity investments, etc.

5 Practical part

5.1 Macroeconomic analysis

5.1.1 COVID-19 impact on economic recovery

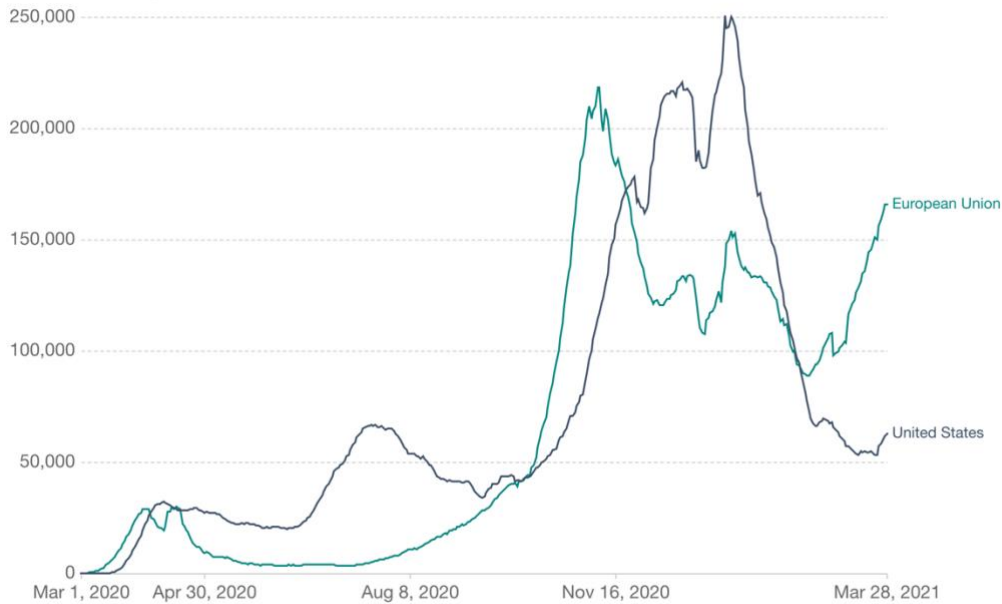
In the composition of the U.S dollar index, the dollar index is actually a relative value. The dollar index consists mainly of the euro, the Japanese yen, the British pound, the Canadian dollar, the Swedish krona and the Swiss franc. The most important of these is the euro. Changes in the currency situation in these countries and regions can have an impact on the dollar.

In other words, whether the dollar depreciates should be measured from a relative perspective. Judging by the extent to which countries around the world have recovered from the Covid-19, the United States has recovered from the Covid-19 much faster than the European countries. This is clearly good for the dollar's strong position. In his "prime-time" speech on March 11th, U.S. President Joe Biden said all adults should be vaccinated by May 1st. In pun rhetoric, it is possible for the United States to gain "independence" from the pandemic before Independence Day on July 4th.

Figure 7 Daily new confirmed Covid-19 cases in US and EU

Daily new confirmed COVID-19 cases

Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.



Source: Johns Hopkins University CSSE COVID-19 Data

CC BY

Source: Johns Hopkins University Covid-19 data (OurWorldinData, Daily new confirmed cases of COVID-19, 2021)

As can be seen from the figure 9 above. The number of new cases in the U.S. has dropped significantly since Biden been the president. At the same time, Europe lags far behind the United States in terms of the current rate of vaccination. This is clearly a strong sign for expectations of US economic recovery.

5.1.2 Fed policy analysis

In terms of economic, the Federal Reserve System (Fed) is focused on two main indicators: unemployment and inflation

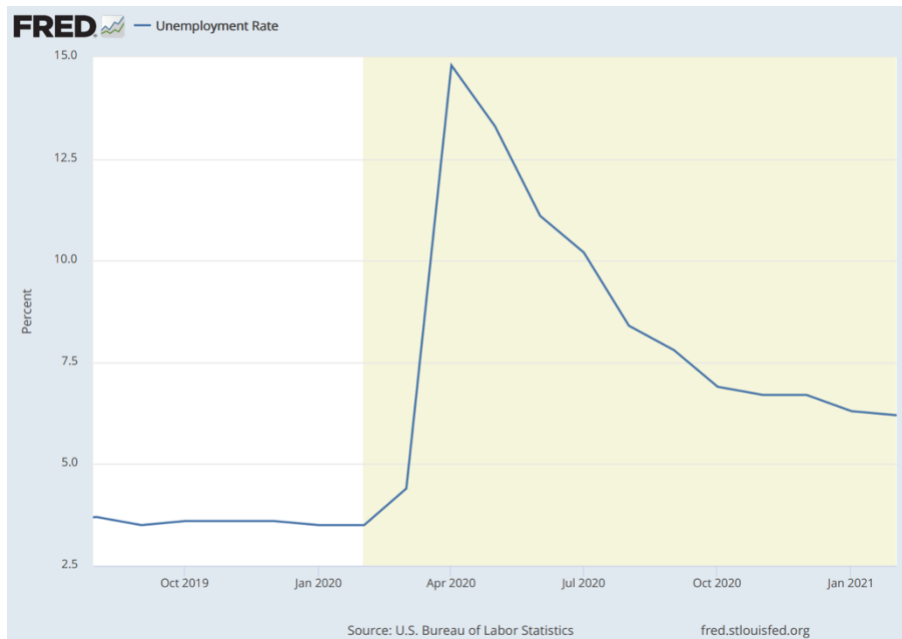
- In terms of unemployment, the U.S. unemployment rate data are doing well. It is expected that the unemployment rate will return to normal as the pandemic is contained. (FRED, 2021)
- In terms of inflation, inflation also continues to rise. And the Fed has said it will continue to allow inflation to exceed expectations for the recovery. And in terms of economic

barometers alone, the performance of U.S. stocks since last year's sharp correction is a further indication that the U.S. economic recovery is doing well.

Despite some views, there is a huge bubble in U.S. stocks. Once U.S. bond yields continue to rise, it will burst the bubble and trigger risk. But as U.S. bond yields continue to rise, U.S. stocks have all but ignored the phenomenon. It also illustrates the strength of U.S. stocks and the economic support behind them. In the short term, U.S. bond yields have not affected financial markets and economic growth.

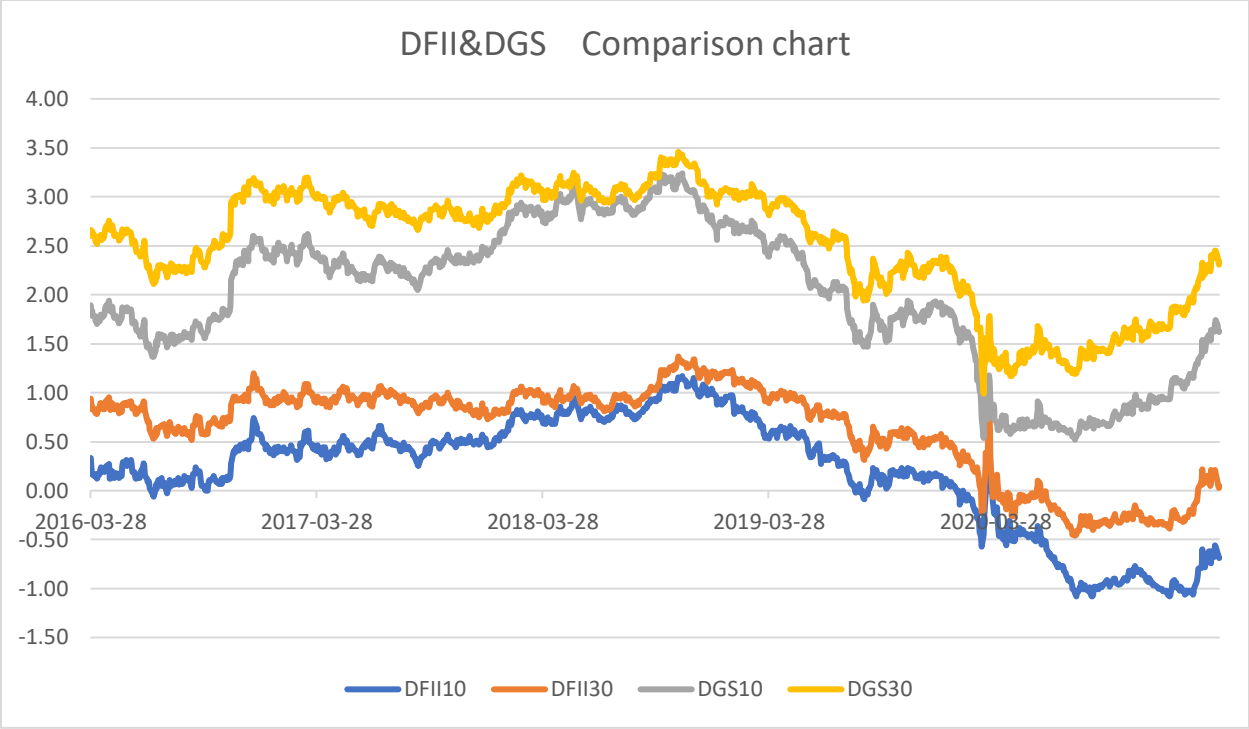
As a result, a single view that higher U.S. bond yields would lead to a collapse in U.S. stocks may not hold true in the short term. Judging from the above indicators, the dollar will remain strong in the short to medium term. (FRED, DFII & DGS, 2021) This comes not only from economic support but also from the U.S. government's economic policies.

Figure 8 U.S. Unemployment rate



Source: U.S Bureau of Labor Statistics

Figure 9 U.S. DFII (20,30) and DGS (10,30) comparison chart



Source: Board of Governors of the Federal Reserve System (US)

DFII10	10-Year Treasury Inflation-Indexed Security, Constant Maturity, Percent, Daily, Not Seasonally Adjusted
DFII30	30-Year Treasury Inflation-Indexed Security, Constant Maturity, Percent, Daily, Not Seasonally Adjusted
DGS10	10-Year Treasury Constant Maturity Rate, Percent, Daily, Not Seasonally Adjusted
DGS30	30-Year Treasury Constant Maturity Rate, Percent, Daily, Not Seasonally Adjusted

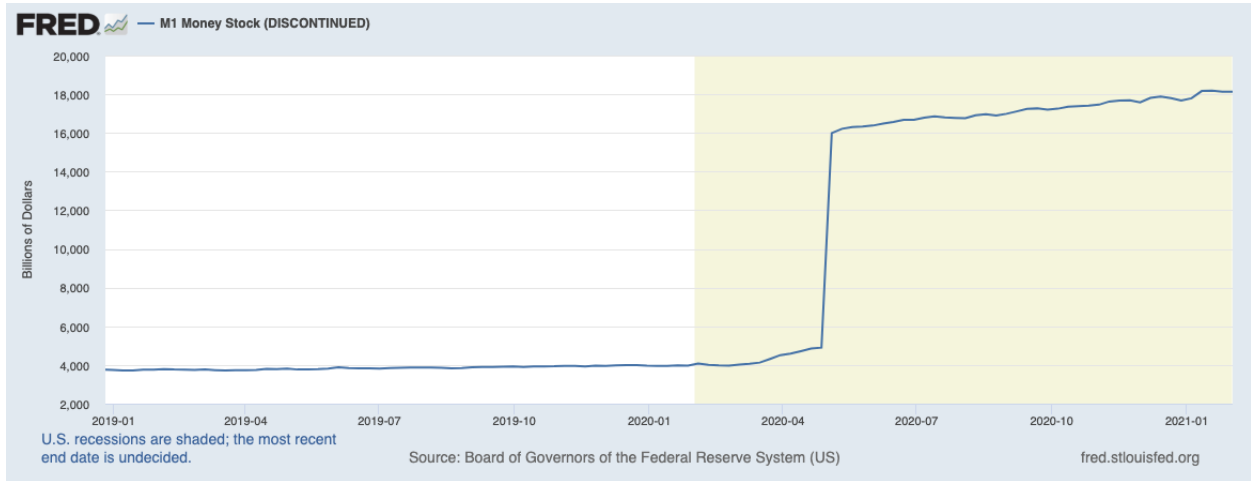
5.1.3 U.S. Dollar Index (DXY) analysis

In terms of U.S. money issuance, even if the M1 money supply increased, the speed of money circulation decreased significantly. The money released by quantitative easing in the US has not yet been used effectively by the market. The real bubble is still on its way.

According to Fisher's equation $MV=PY$,

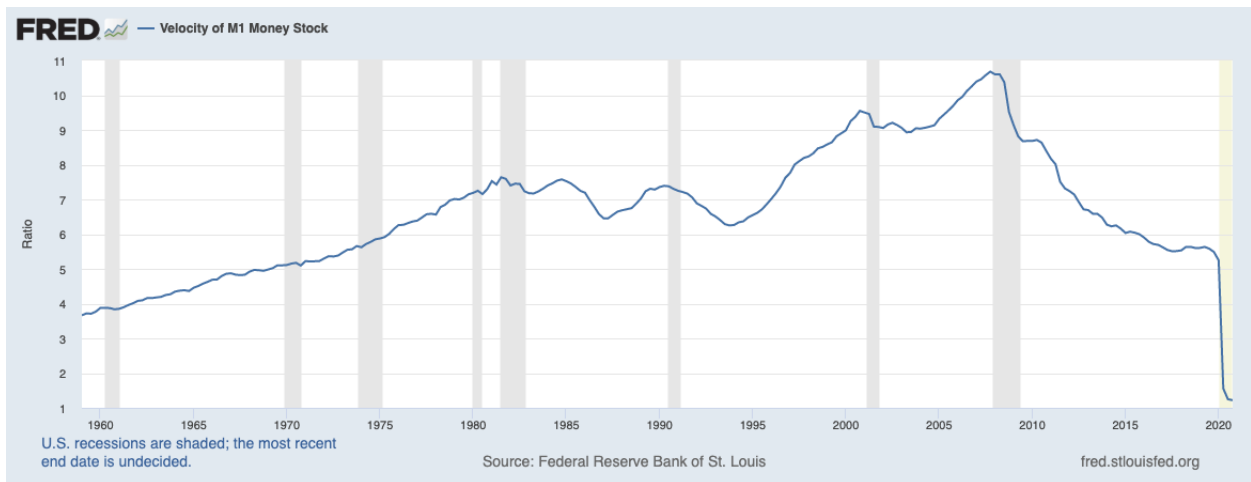
Although the U.S. currency circulation as of March 17, 2021 is 4.5 times higher than it was before the normal market in 2019, the speed of money circulation is only one-fifth that of 2019.

Figure 10 U.S. M1 Money Stock (Discontinued)



Source: Board of Governors of the Federal Reserve System (US)

Figure 11 U.S. Velocity of M1 money stock



Source: Board of Governors of the Federal Reserve System (US)

In other words, the currency actually issued by the United States is not actually being used effectively. On the one hand, the U.S. issued currency in the early stage mainly to bank reserves.

It is not really assigned to individuals. On the other hand, the isolation of the epidemic has limited economic activity and led to a decline in the speed of money circulation. With the release of \$1.9 trillion in fiscal stimulus and effective outbreak control in the United States. Subsequent currency flows are expected to accelerate. That will further boost the U.S. economy. This makes the dollar stronger.

Therefore, from the perspective of the dollar itself, as a risk-averse asset has a certain investment demand.

Externally, the U.S. economic recovery is progressing relatively faster than its rivals. This also forms an external support for the dollar.

From the follow-up future, the dollar in different markets to create diversion. The negative impact of the dollar inflation on the dollar is already reflected. Whether there will be the dollar depreciation, it takes time to be proof by the market.

In future economic cycles, if money flows into the market, the market is difficult to absorb or the U.S. economic recovery is not recovering as expected. A large number of asset bubbles are likely to lead to a dollar crisis.

5.1.4 Sum

In summary, the short to medium term of the dollar is influenced by a variety of factors. The dollar has gradually erred from its weakness since the beginning of the year. This suppresses the price of gold. The risks of a bursting dollar asset bubble should be looked at over a longer period of time. Whether it will happen depends on the Fed's regulation. If the dollar loses its place because of hyperinflation between bubbles. The U.S stock market will face a huge correction.

5.2 Financial fraud analysis base on Beneish model calculation

Because of COVID-19, many traditional industries went bankrupt. Some companies have to use false financial reports to cover up their poor financial situation, in order to attract investors. Nordstrom, a traditional retail company, is doing impressively well in 2020. This article will use Beneish Model to check JWN possibility to be financially fraudulent.

5.2.1 Formulas:

Index	Calculation
DSRI	$(\text{Net Receivables}_t / \text{Sales}_t) / (\text{Net Receivables}_{t-1} / \text{Sales}_{t-1})$
GMI	$\text{GMI} = [(\text{Sales}_{t-1} - \text{COGS}_{t-1}) / \text{Sales}_{t-1}] / [(\text{Sales}_t - \text{COGS}_t) / \text{Sales}_t]$
AQI	$[1 - (\text{Current Assets}_t + \text{PP\&E}_t + \text{Securities}_t) / \text{Total Assets}_t] / [1 - ((\text{Current Assets}_{t-1} + \text{PP\&E}_{t-1} + \text{Securities}_{t-1}) / \text{Total Assets}_{t-1})]$
SGI	$\text{SGI} = \text{Sales}_t / \text{Sales}_{t-1}$
DEPI	$(\text{Depreciation}_{t-1} / (\text{PP\&E}_{t-1} + \text{Depreciation}_{t-1})) / (\text{Depreciation}_t / (\text{PP\&E}_t + \text{Depreciation}_t))$
SGAI	$(\text{SG\&A Expense}_t / \text{Sales}_t) / (\text{SG\&A Expense}_{t-1} / \text{Sales}_{t-1})$
LVGI	$[(\text{Current Liabilities}_t + \text{Total Long Term Debt}_t) / \text{Total Assets}_t] / [(\text{Current Liabilities}_{t-1} + \text{Total Long Term Debt}_{t-1}) / \text{Total Assets}_{t-1}]$
TATA	$(\text{Income from Continuing Operations}_t - \text{Cash Flows from Operations}_t) / \text{Total Assets}_t$

5.2.2 JWN Essential data used in calculation

Table 1 JWN Essential financial data

	01-2021	01-2020	01-2019	01-2018	01-2017
Revenue	10715	15524	15860	15478	14757
Cost of Goods Sold	7600	9932	10155	9890	9440
Selling, General, & Admin. Expense	4162	4808	4868	4662	4512
Depreciation	839	837	661	655	631
Net Income from Continuing Operations	-690	496	564	437	354
Accounts Receivables	245	179	148	145	199
Current Assets	3642	3230	3374	3503	3242
Property, Plants, & Equipment	249	249	249	238	238
Securities ⁽¹⁾	0	0	0	0	0
Total Assets	9538	9737	7886	8115	7858
Current Liabilities	9233	8758	7013	7138	6988
Total Long-term Debt	4456	4551	2677	2681	2763
Cash Flow from Operations	-348	1236	1296	1400	1658

(1) Securities is also referred to as total long-term investments

5.2.3 JWN 2021 financial report M-score analysis.

(1) Day Sales in Receivables Index (DSRI)

JWN account Receivable in 2021 is 245, in 2020 is 179.

JWN Revenue (sales) in 2021 is 10715, in 2020 is 15524.

$$\begin{aligned} \text{DSRI} &= (\text{Net Receivables}_{2021} / \text{Sales}_{2021}) / (\text{Net Receivables}_{2020} / \text{Sales}_{2020}) \\ &= (245/10715) / (179/15524) = 1.98 \end{aligned}$$

The higher the DSRI index, the higher the possibility that the firm will deliberately increase revenue and profits by manipulating accounts receivable items. In other words, the greater the possibility of financial fraud.

(2) GMI (Gross margin index)

$$\begin{aligned} \text{GMI} &= [(\text{Sales}_{2020} - \text{COGS}_{2020}) / \text{Sales}_{2020}] / [(\text{Sales}_{2021} - \text{COGS}_{2021}) / \text{Sales}_{2021}] \\ &= 1.24 > 1 \end{aligned}$$

The data show a downward trend in gross margin. This means a weakening of JWN profitability. This negative signal also implies an increase in JWN's intention to falsify profits. That is, the possibility of financial fraud.

(3) AQI (Asset quality index) :

$$\begin{aligned} \text{AQI} &= [1 - (\text{Current Assets}_{2021} + \text{PP\&E}_{2021} + \text{Securities}_{2021}) / \text{Total Assets}_{2021}] / [1 - ((\text{Current Assets}_{2020} + \text{PP\&E}_{2020} + \text{Securities}_{2020}) / \text{Total Assets}_{2020})] \\ &= 1.14 > 1 \end{aligned}$$

The data show a decline in the quality of JWN's assets. It also means that JWN faces an increased risk of asset realization. It is very likely that enterprises will delay cost report through cost capitalization and other measures. JWN profits are also more likely to be manipulated

(4) SGI (Sales growth index) :

$$\text{SGI} = \text{Sales}_{2021} / \text{Sales}_{2020} = 1.05$$

(5) DEPI (Depreciation index) :

$$\text{DEPI} = (\text{Depreciation}_{2020} / (\text{PP\&E}_{2020} + \text{Depreciation}_{2020})) / (\text{Depreciation}_{2021} / (\text{PP\&E}_{2021} + \text{Depreciation}_{2021}))$$

$$= 0.99 < 1$$

This data indicates that the depreciation rate of the enterprise is increasing. JWN's depreciation expense is falling. Compared to 2020, it shows that JWN is depreciated within a reasonable range.

(6) SGAI (Sales, general, and administrative expenses index) :

$$\text{SGAI} = (\text{SG\&A Expense}_{2021} / \text{Sales}_{2021}) / (\text{SG\&A Expense}_{2020} / \text{Sales}_{2020})$$

$$= 0.99 < 1$$

The data show that the sales and management expenses of enterprises have decreased. JWN management's motivation to modify the expenses is weak.

(7) LVGI (Leverage index) :

$$\text{LVGI} = [(\text{Current Liabilities}_{2021} + \text{Total Long Term Debt}_{2021}) / \text{Total Assets}_{2021}] / [(\text{Current Liabilities}_{2020} + \text{Total Long Term Debt}_{2020}) / \text{Total Assets}_{2020}]$$

$$= 0.98 < 1$$

The results show that there is a downward trend in financial leverage. The financial risk to the enterprise decreases, which in turn reduces the risk of default.

(8) TATA

$$\text{TATA} = (\text{Income from Continuing Operations}_{2021} - \text{Cash Flows from Operations}_{2021}) / \text{Total Assets}_{2021}$$
$$= 0.98$$

TATA measures liquid assets in the non-monetary category of an enterprise. The results showed that there was a low probability of unreasonable change in current liabilities.

(9) Beneish M-score

Table 2 JWN 2021 M-score calculation

Financial Ratios Indexes	01-2021	01-2020	Index
Day Sales in Receivables Index (DSRI)	8.35	4.21	1.98
Gross Margin Index (GMI)	0.29	0.36	1.24
Asset Quality Index (AQI)	-0.41	-0.36	1.14
Sales Growth Index (SGI)	\$10,715	\$15,524	0.69
Depreciation Index (DEPI)	0.77	0.77	1
Selling, General, & Admin. Expenses Index (SGAI)	0.39	0.31	1.25
Leverage Index (LVGI)	1.44	1.37	1.05
Total Accruals to Total Assets (TATA)	-0.04		-0.04

$$\text{M-score} = -4.84 + 0.92 \times \text{DSRI} + 0.528 \times \text{GMI} + 0.404 \times \text{AQI} + 0.892 \times \text{SGI} + 0.115 \times \text{DEPI} - 0.172 \times \text{SGAI} + 4.679 \times \text{TATA} - 0.327 \times \text{LVGI} = -1.896$$

M-score is $-1.896 < -1.78$ means JWN is unlikely to have financial fraud in 2021 financial report. Their financial data in 2020 is reliable. As investor, we can trust their earning call to make investment decision.

5.2.4 JWN financial fraud possibility

Table 3 JWN history M-score (2018-2021)

Financial Ratios Indexes	2021	2020	2019	2018
Day Sales in Receivables Index (DSRI)	1.983	1.236	0.996	0.695
Gross Margin Index (GMI)	1.239	0.999	1.004	0.998
Asset Quality Index (AQI)	1.142	0.778	0.997	1.041
Sales Growth Index (SGI)	0.690	0.979	1.025	1.049
Depreciation Index (DEPI)	0.999	0.942	1.010	0.990
Selling, General, & Admin. Expenses Index (SGAI)	1.254	1.009	1.019	0.985
Leverage Index (LVGI)	1.050	1.112	1.016	0.975
Total Accruals to Total Assets (TATA)	-0.036	-0.076	-0.093	-0.119

Beneish M Score	-1.896	-2.773	-2.903	-3.247
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This chart shows the Beneish M-score result from 2018-2021. As we can see that all the Beneish M Score < -1.78. It means JWN's financial report is very reliable. Company is not likely to have manipulated their earnings. JWN financial fraud possibility is very low. Investor can use those calculation result as reference to make investment decisions.

5.3 DCF Model

DCF is an absolute valuation method in which the free cash flow that an asset can generate in the future (usually forecasted for 5-10 years) is discounted at a reasonable discount rate as the weighted average cost of capital (WACC) to obtain the value of the asset. If the discounted value is higher than the current price of the asset, it is profitable to buy. If it is below the current price, the current price is overvalued and needs to be avoided or sold.

5.3.1 JWN history financial sheet

Table 4 JWN Balance Sheet (2017-2021)

	01-2017	01-2018	01-2019	01-2020	01-2021
Assets					
Current Assets					
Cash & Cash Equivalents	1,007	1,181	957	853	681
Marketable Securities	N/A	N/A	N/A	N/A	N/A
Receivables	199	145	148	179	245
Inventories	1,896	2,027	1,978	1,920	1,863
Total	\$3,242	\$3,503	\$3,374	\$3,230	\$3,642
Non-Current Assets					
PPE Net	3,897	3,939	3,921	4,179	3,732
Investments And Advances	0	0	0	0	0
Intangibles	238	238	249	249	249
Other Non-Current Assets	481	435	342	2,079	1,915
Total	\$4,616	\$4,612	\$4,512	\$6,507	\$5,896
Total Assets	\$7,858	\$8,115	\$7,886	\$9,737	\$9,538
Liabilities					
Current Liabilities					

Short Term Debt	500	0	8	56	11
Accounts payable and accrued liabilities	1,960	1,576	1,469	1,409	1,340
Accrued Expenses	352	510	580	578	455
Total	\$4,120	\$3,520	\$3,381	\$3,289	\$3,029
Non-Current Liabilities					
Long Term Debt	2,769	2,676	2,677	2,681	2,763
Other Non-Current Liabilities	2,344	2,562	498	673	675
Total	\$5,113	\$5,238	\$3,632	\$3,849	\$3,959
Total liabilities	\$9,233	\$8,758	\$7,013	\$7,138	\$6,988

Source: JWN annule report (From <https://press.nordstrom.com/static-files>)

Table 5 JWN Income statement (2017-2021)

	01-2017	01-2018	01-2019	01-2020	01-2021
Sales	14,757	15,478	15,860	15,524	10,715
Cost of Goods	9,440	9,890	10,155	9,932	7,600
Gross Profit	5,317	5,588	5,705	5,592	3,115
Operating Expenses	4,512	4,662	4,868	4,808	4,162
Operating Income	805	926	837	784	-1,047
Interest Expense	121	136	104	102	181
Other Income	0	0	0	0	0
Pre-tax Income	684	790	733	682	-1,228
Income Tax	330	353	169	186	-538
Net Income Continuous	354	437	564	496	-690
Net Income	\$354	\$437	\$564	\$496	\$-690

Source: JWN annule report (From <https://press.nordstrom.com/static-files>)

Table 6 JWN cash flow (2017-2021)

	01-2017	01-2018	01-2019	01-2020	01-2021
Operating Cash Flow	1,658	1,400	1,296	1,236	-348
Capital Expenditure	-846	-731	-654	-935	-385
Free Cash Flow	812	669	642	301	-733

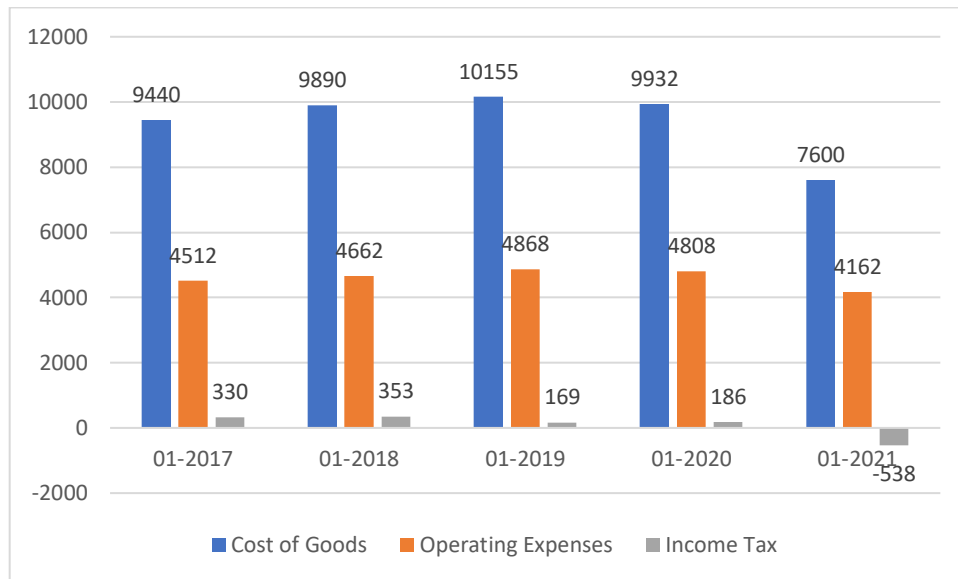
Source: Own calculation based on JWN annule report.

5.3.2 Predict JWN future FCF

Nordstrom had built the B2C business model long before Covid-19. User traffic has been accumulated in B2C business mode by Nordstrom.com and Nordstromrack.com. Nordstrom Business began to accelerate its transformation during Covid-19. Considering advantage of Nordstrom business circle, Nordstrom whole industry development and Consultant companies' prediction, we can predict next year will be recovering period for JWN stock. The second to fifth year will be stable period. The income growth rate will be 20%, 10%, 10%, 10%, 10%. JWN Free cash flow in 2019 is \$642 million. Under the idea of multiplier analysis method, the growth rate of an enterprise is determined by both revenue and cost.

Because of Covid-19 break out in 2020, financial market got disturbed by this black house event. In other words, Free Cash flow data is not reliable when predicting the future Free cash flow. In this article I used Free cash flow in 2020 as criteria.

Figure 12 The essential cost elements value



Source: Based on JWN annule report

Table 7 The ratio of cost elements to income

	01-2021	01-2020	01-2019	01-2018	01-2017
Cost of Goods	70.93%	63.98%	64.03%	63.90%	63.97%
Operating Expenses	38.84%	30.97%	30.69%	30.12%	30.58%
Income Tax	-5.02%	1.20%	1.07%	2.28%	2.24%

As the pandemic settle down and development of new business model, the revenues will rise. And operating expenses are going down. JWN will continue to maintain net cash flow growth of around 2.21% beyond 2024. (Choose the ROE growth rate of the investment institutions), as follows:

Table 8 JWN 2021-2024 FCFF (million)

	01-2019	01-2022	01-2023	01-2024	01-2025	01-2026
Free cash flow	642.00	770.40	847.44	932.18	1025.40	1127.94

Source: Own prediction based on business recovery

5.3.3 WACC calculation

JWN cost of capital is estimated through a Weighted Average Cost of Capital (WACC). The cost of equity cost is estimated by using Weighted Average Cost of Capital (CAMP) model.

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f)$$

$E(R_i)$ = capital asset expected return

R_f = risk-free rate of interest

β_i = sensitivity

$E(R_m)$ = expected return of the market

(1) Estimate the cost of equity

The current five-year US Treasury Bonds Rates in 2021 is 0.856%, and we use the five-year US Treasury Bonds Rates as a risk-free rate of interest, so $R_f = 0.856\%$

To manage the risk at a certain level, the expected return on investment rate of the company is the company's cost of equity ratio. The risk rate of interest can be displayed as the difference

between the stock market index yield and the risk-free rate of interest on the stock market. This article focuses on Nordstrom (JWN), which is listed in the United States. We used the five-year S&P. 500 index for the U.S. stock market from 2016 to 2020 to calculate the average return rate on the stock market. The table is shown in the figure below:

Table 9 S&P 500 ROI return rate

	2015	2016	2017	2018	2019	2020
S&P 500 index	2043.94	2238.83	2673.61	2506.85	3230.44	3756.07
Return rate of S&P500		8.70%	16.26%	-6.65%	22.40%	13.99%

Source: Yahoo Finance

Figure 13 S&P 500 index performance chart



Source: TradingView

Average S&P 500 ROI = 10.94%

Source: JWN Beta (5Y Monthly) $\beta = 2.50$, according to Yahoo Finance.

the cost of equity:

$$Re = R_f + \beta(ER_m - R_f) = 4.52\% + 2.50 (13.99\% - 4.52\%) = 28.19\%$$

(2) Estimate Cost of debt

Total equity (E): 6120(million)

Total debt (D):

long-term debt + short-term debt = 500 + 2769 = 3269 (million)

Cost of debt (R_D) (Pre-Tax):

$$\frac{\text{Total interest Cost Incurred}}{\text{Total Debt}} \times 100\% = \frac{181}{3269} = 5.53\%$$

Corporate tax rate (T):

$$\frac{\text{Income Tax}}{\text{Pre-tax Income}} = \frac{538}{1228} = 43.81\%$$

$$WACC = \frac{E}{E + D} \times R_E + \frac{D}{E + D} \times R_D \times (1 - T) = 19.46\%$$

5.3.4 Predict JWN market value

Based on the above assumptions, JWN's cash flow for 2024 is:

$$FCF_{2026} = 1127.94 \text{ million}$$

$$TV = \frac{FCF_{2024}}{WACC - g} = \frac{793.8}{19.46\% - 2.21\%} = 6538.8 \text{ million}$$

Based on the parameters identified above, the enterprise value of JWN is evaluated. As shown in the table 10:

Table 10 TV and MV

	01-2022	01-2023	01-2024	01-2025	01-2026	TV	Market Value
Free cash flow	770.4	847.44	932.18	1025.40	1127.94	6538.8	
(WACC-g)^n	1.19	1.43	1.70	2.04	2.43	2.43	
Transaction CF	644.90	593.83	546.81	503.51	463.63	2687.7	5440.41

Source: Own calculation based on FCF and WACC

$$EV = \frac{FCF_1}{(1+WACC)} + \frac{FCF_2}{(1+WACC)^2} + \dots + \frac{FCF_{n-1}}{(1+WACC)^{n-1}} + \frac{FCF_n}{(1+WACC)^n} + \frac{TV}{(1+WACC)^n}$$

So JWN Market value = 5440.41 million

Based on JWN financial report, they have 157.77 million Shares Outstanding.

Stock price = *Market Value/Shares Outstanding* = 34.49 \$

JWN stock prices 36.7\$ in 20th, Mar,2021. Considering Stock market in 2021 are very volatile, JWN stock price is moving between 32 to 40\$. Comparing with JWN stock price in DCF, JWN stock price is in a reasonable price zone.

6 Conclusion and Discussion

The research results will contain two main parts: US stock market trend and JWN stock value estimation.

6.1 Predict the U.S. stock market future trend

Through the analysis of the U.S. macro-economy, this paper will predict the future trend of U.S. stocks. There are two important factors that will determine stock market trend, which are Fed policy and Dollar index trend.

As can be seen from the Fed policy, the U.S. economic recovery is generally as follows: Fed loose monetary policy - weakening the dollar index - economic recovery - Treasury yields rebounding - capital returning to the US - the dollar index is stronger - US assets are rising - the economy is back on track. (Kelton, 2016)

In the terms of the Fed's massive dollar releasing, the intention is to stimulate the economy. If a chain breaks in the middle, the U.S. economy could fail to recover. And there will be bubble bursts, market crashes and so on. In order to keep the market healthy and the U.S. economy recovering gradually, Fed is bound to be extremely cautious about yield control. The Fed will not impose controls on it. In this case, there is limited risk on the U.S. economic recovery. As long as U.S. economy hasn't recovered to the stage before Covid-19, there is very small chance that Fed changes their policy. The stock market will remain strong.

There is another point that economy needs to pay attention to that Velocity of M1 money stock is still remaining in a very low level. It's even more crucial for traditional industry such as JWN. Velocity of M1 money stock depends on economy growth rate and US Money supply growth. As we can see in the figure 12&13, M1 Money Stock is remaining in high level. However, Velocity of M1 money is stable in low level. It means family, enterprise and government, none of them are going to consumption. They may spend more on savings, investments or debt repayments

rather buying services. Even there is a huge economy stimulation plan, the effect of boosting economy will not very well.

In another aspect, big capital could save cash on hand, waiting a correct time to enter the market. In particular, when mass vaccinations begin and the world economy begins to recover, investor may be more inclined to consumption than to saving. It was when Velocity of M1 money stock will catch up.

All in all, from both sides Fed policy and Dollar index, there is positive prediction for stock market. It will benefit traditional industry, particular for JWN whose revenue is mainly from Offline entity store.

6.2 Estimate JWN stock price

In the thesis, Beneish model are used to detect JWN financial fraud possibility. The table 3 has calculate all M-score result from 2018-2021. As we can see that all the Beneish M Score < -1.78 . It means JWN's financial report is very reliable. Company is not likely to have manipulated their earnings. JWN financial fraud possibility is very low. Investor can use those calculation result as reference to make investment decisions.

And DCF model are used to estimate JWN future stock value. in theoretical part, we did research on JWN business model and challenge. JWN has been trying to develop B2C before pandemic. New business model will bring JWN revenue to higher level. On the other hand, Covid-19 settle down just a matter of time. Based on it, we estimate JWN FCFE in the next 5 years and calculate WACC. In the end, we successfully estimate JWN stock value: 34.49\$. Based on the above calculations, it is currently recommended to maintain observation. Obviously, JWN stock price has been priced-in their future business development.

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