

New Economy Companies: Impact of COVID-19 on Valuation

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The boom of innovative and new technology-oriented companies that provide products and services to customers in recent years has given rise to a new class of firms called New Economy Companies, or NECs. Accurate valuation of these companies throughout their life cycles can be challenging because most of them have massive amount of debt and have a long history of losses since inception, and their principal assets are mostly intangible with no clear values. Inadvertently, the COVID-19 pandemic has added even more obstacles for valuation providers to determine the value of this new type of companies. This paper examines the characteristics of NECs, valuation methods, and the impact of COVID-19 on the valuation of these companies.

Keywords: New Economy Companies (NECs), valuation of New Economy Companies, techniques used by New Economy Companies

Introduction

According to Organisation for Economic Co-operation and Development (OECD), new economy is the sector of economy that produces or intensely uses innovative or new technologies. This relatively new concept applies to industries that increasingly depend on computers, telecommunications, and internet to conduct business. Hong Kong Institute of Certified Public Accountants defines New Economy as new industries that constantly improve technology or use new technologies to produce, sell, or distribute their goods and services.

In recent years, the rise of new economy has been accompanied by the development of emerging industries, new enterprises, and new technologies. As a result, a new class of companies called New Economy Companies (NECs) emerged. Examples of NECs include information technology, biomedicine, and big data companies. Even traditional companies are slowly transforming into NECs by adding new technologies to their operations because such transformation could result in a tremendous increase in their market value. Table 1 presents some examples of such transformations.

NECs have flourished since the 2008 financial crisis. The new economy industry accounted for 16.1% of China's GDP in 2018. It became the new engine for China's development (Xie & Zhang, 2021). In light of the rapid emergence of newly-formed NECs and the transformation of traditional companies into NECs, it is important for investors to understand what these companies are and how their market values are determined. The purpose of this paper is to examine the characteristics of NECs, how they should be valued, and the impact of COVID-19 on the valuation of these companies.

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Table 1

New Economy Enterprises

Industry	New technologies (new business models)
Automotive industry	<ul style="list-style-type: none"> • rideshare • automatic parking • automatic driving
Machinery and equipment	<ul style="list-style-type: none"> • 3D printing • improving accuracy by using Machine Learning
Financial services	<ul style="list-style-type: none"> • Fintech • mobile banking • credit rating and credit assessment
Transportation and logistics	<ul style="list-style-type: none"> • hotels, airlines ticket apps • intelligent trucking using sensors, GPS and traffic data application
Life science	<ul style="list-style-type: none"> • monitoring health with wristbands and smartwatches • Biostamps • Digital Pill
Media and entertainment	<ul style="list-style-type: none"> • social media platforms • music streaming apps • E-sports, AR/VR
Real estate	<ul style="list-style-type: none"> • performing building inspection by using cameras and sensors • agents conducting guided tours by using Virtual Realty
Government enforcement	<ul style="list-style-type: none"> • remotely monitoring illegal crossings, photo-taking, by using cameras and sensors • facial recognition and tracking suspects
Robots and drones	<ul style="list-style-type: none"> • using robots for electricity and public utilities inspection • mining industry • packaging • performing dangerous tasks

Characteristics of New Economy Companies

NECs are different from traditional companies in many different aspects. Table 2 summarizes the differences between NECs and traditional companies.

Table 2

New Economy Companies Versus Traditional Companies

	Old economy	New economy
Business model	Capital intensive	Light capital; platform; sharing
Market value	Rely heavily on tangible assets	Rely heavily on intangible assets
Business	Clear	Cross-industry
Business strategy	Focus on products, economies of scale	Focus on R&D, customers
Technology	Medium/low	High
Revenue growth	Steady	Explosive (across geographic locations)
Cost-revenue relation	Proportional	Un-proportional
Valuation method	P/E ratio, profit margin, revenue, net asset value	Number of customers, growth
Regulations	Mature	Few or none, in development

Unlike traditional companies that are capital intensive with factories, equipment, infrastructure, and other tangible assets, NECs require very light capital and their assets are mostly intangible. Their businesses are likely to be cross-industry. They focus heavily on R&D and customer service. Since their operations do not require much tangible assets, the business model can easily be replicated in any other geographic locations. The

resulting huge increase in the number of potential clients could lead to explosive revenue growth. NEC's cost-revenue relation is not proportional, unlike that of traditional companies. Their valuation is derived from number of customers and growth of the company instead of traditional financial metrics such as revenue growth and profit. Since NECs do not have a long history of existence, there are few laws and regulations to guide their practices because these laws and regulations are still being developed.

According to Xie and Zhang (2021), NECs have the following four main characteristics:

1. Asset-light: Measured by accounting standards, NECs' net asset value makes up a small proportion of their market capitalization. In addition, the proportion of intangible assets and goodwill relative to the companies' asset book value has been increasing since 2007.

2. Short life span: According to DT Finance (2020), startup companies in the 10 most popular industries had an average life span of shorter than four years from 2014 to 2019. The life span of almost 60% of Chinese companies is shorter than five years. NECs tend to have shorter life span than traditional companies because of their weak business models and higher risk. Insufficient financing capacity, cash flow disruption, competition, product entry time, market pseudo demand, business adjustment, and excessive business fragmentation also lead to short life span for NECs.

3. Long-term loss: Even when NECs survive the early years, they experience substantial long-term losses. Examples of such companies include Amazon, which experienced eight years of losses, including six years of losses after going public, Dropbox, Uber, and Tesla. NECs sustain continuous losses because they have to make large investments in R&D, customer services, and fixed assets that are often highly technical and can only be produced in a few countries. They also have to pay high salaries to managers or technical experts, and rely on venture capital.

4. High valuations and high market value despite losses: Many NECs have high market value even though they have large losses over long periods of time and their net assets have negative book value before and after IPOs.

Technologies Employed by New Economy Companies

Blockchain

NECs utilize Blockchain technology to handle the enormous amount of information they need to process to get their business started (see Big Data in the following section). Blockchain technology has received a lot of attention over the last decade. It is a database that stores data in blocks that are then chained together. New data that come in are entered into a fresh block. Once that block is filled, it is chained onto the previous block, storing data chained together in chronological order. By time-stamping transactions and recording them chronologically, a blockchain creates a digital ledger, logging the entire life cycle of money as it flows and changes hands. The automatic recording of transactions improves the efficiency of the process, reducing the amount of time needed to record ledgers and the costs of recording them manually.

The decentralized nature of the system inherently makes an irreversible timeline of data because when a block is filled, it becomes a part of the timeline. The transactions are permanently recorded and the data cannot be tampered with or changed retrospectively. The irreversibility of data means a blockchain can log a complete, unchangeable record of every transaction, offering huge protection from fraud.

Blockchain's heightened security also removes third parties from transactions. Companies can bypass the multiple parties required in traditional fraud prevention methods to validate transactions, resulting in cost savings as they will only pay for products and services that they need.

Big Data

A database is designed to house large amounts of information that can be accessed, filtered, and manipulated quickly and easily by any number of users at once. NECs typically deal with Big Data, the volume of which is so large that it cannot be retrieved, managed, processed, or organized into a human-readable form in a reasonable length of time, either manually or by using computers. The huge size of Big Data produces challenges in its storage. In addition, it can be analyzed only by using software specifically designed to handle large, complex data sets.

The goal of Big Data is to increase the speed at which products get to the market, reduce the time and resources required to gain target audiences and market share, and ensure customers remain satisfied. Big Data helps organizations to create new growth opportunities. Many companies, such as Alphabet and Facebook, use Big Data to generate ad revenue by placing targeted ads to users on social media and those surfing the web. Big Data can also help companies to achieve cost savings, time reductions, improved customer service, as well as to better understand market conditions. Analyzing Big Data can provide organizations with unique and timely business and financial insights that lead to better decisions and strategic business moves. For example, by examining demographic data and purchase history, data analysts can determine if a correlation exists in order to better tailor products and marketing efforts that would result in the highest level of satisfaction and repeat business.

Big Data has the following characteristics:

1. **Volume:** Big Data is enormous and contains massive amount of information, which can be collected from a variety of sources such as business transactions, social media, and sensor or machine-to-machine data.
2. **Variety:** Big Data can be either structured or unstructured. Structured data consist of information already managed by the organization in databases and spreadsheets. Unstructured data can be from text documents, email, video, audio, stock data, and financial transactions.
3. **Velocity:** The flow of data is continuous. How fast data are generated and processed to meet demands determines real potential in the data. The unprecedented speed at which data are generated must be dealt with at a timely manner.
4. **Variability:** At times data can be inconsistent, which hampers the process of handling and managing the data effectively.

Artificial Intelligence

Artificial Intelligence (AI) is technology designed to mimic the human mind in analysis and learning, and in drawing conclusions on data. By definition, any type of computer software that engages in human-like activities, such as learning, planning, and problem-solving, can be referred to as AI. It is a technology that delves into the idea of eliminating mundane tasks by using computer programming to imitate human intelligence. AI is a useful tool to dissect financial data that span multiple periods. It allows for more efficient analysis of thousands of transactions within a considerably shorter timeframe than with traditional analysis, resulting in cost savings. AI can also broaden and deepen users' understanding of the subject matter since it can detect a larger volume of information.

Time saving can also be accomplished because AI uses Natural Language Processing technology to quickly identify key terms or performance indicators within various documents. In addition, AI applies Machine-Learning technologies to quickly process vast amount of data. This type of AI utilizes algorithms that appear to “learn” over time. It can rapidly analyze data, identifying patterns and anomalies. The more it “learns,” the better it becomes at what it does. Deep learning is an even more specific version of machine learning that engages in nonlinear reasoning by relying on neural networks. It is essential to performing functions that are more advanced since it can analyze a wide range of factors simultaneously.

The risk of human error due to clerical mistakes is significantly reduced since AI involves little human interactions. And if human errors exist, they will be detected by AI through identification of anomalies or inconsistencies in data sets.

Features of New Economy Company Value

Most NEC startups go through a number of rounds of funding before getting to Initial Public Offering (IPO), if the companies are successes. For example, WeWork is an American commercial real estate company that was founded in 2010. It provides flexible shared workspaces for technology startups and services for other enterprises. WeWork went through 17 rounds of funding. But its 2019 IPO failed. Its expensive business model had been known to have little pathway to profitability since 2015. It could not make money even in the best of economic climate. Issues that were of concern included massive cash burn, questionable governance structure, and a bloated valuation driven purely by SoftBank’s funding rather than true market perception. On the other hand, Coinbase Global Inc., an American company founded in 2012 that operates a cryptocurrency exchange platform, had a successful IPO in April 2021 after 14 rounds of funding. The IPO was so successful that it was hailed as a watershed moment for cryptocurrency. The success of Coinbase’s IPO could be attributed to the firm’s proven business model. Coinbase was catching the wave of the cryptocurrency economy that was growing. It was profitable even before its IPO.

The value of a startup reflects the value that potential investors see in it during its life cycle: Early Stage, High-Growth or Teenage Stage, Maturity Stage. Tribal Advisors, a consulting firm that focuses on mergers and acquisitions as well as helping startups with their exit strategy, constructed a startup valuation curve, as shown in Figure 1 (Sabet, 2018). The curve shows two distinct troughs that reflect the many great challenges faced by startups during both the Early Stage and Teenage Stage. A startup’s value reaches the first peak when customers recognize the great potentials of the company’s business model and the value of the products/services that the company sells, indicating initial validation. The startup is likely to receive a seed round or a small round of funding at this time. Before it can attract any new funding, it needs to prove that it has found product-market fit and a repeatable business model. Many startups do not reach the second peak to complete the Early Stage because they are unable to get a significant and growing number of repeat customers for investors to show interest and provide additional funding.

The Teenage Stage is a lot more difficult to navigate than the Early Stage. Instead of selling their products or services to early adopters, startups need to capture a majority of their target customers during this stage. In addition, more challenges and obstacles lie ahead as number of employees and customers as well as business complexity increase in this stage. Only if a startup can successfully complete the challenging Teenage Stage and become a mature company can it focus on further growth.

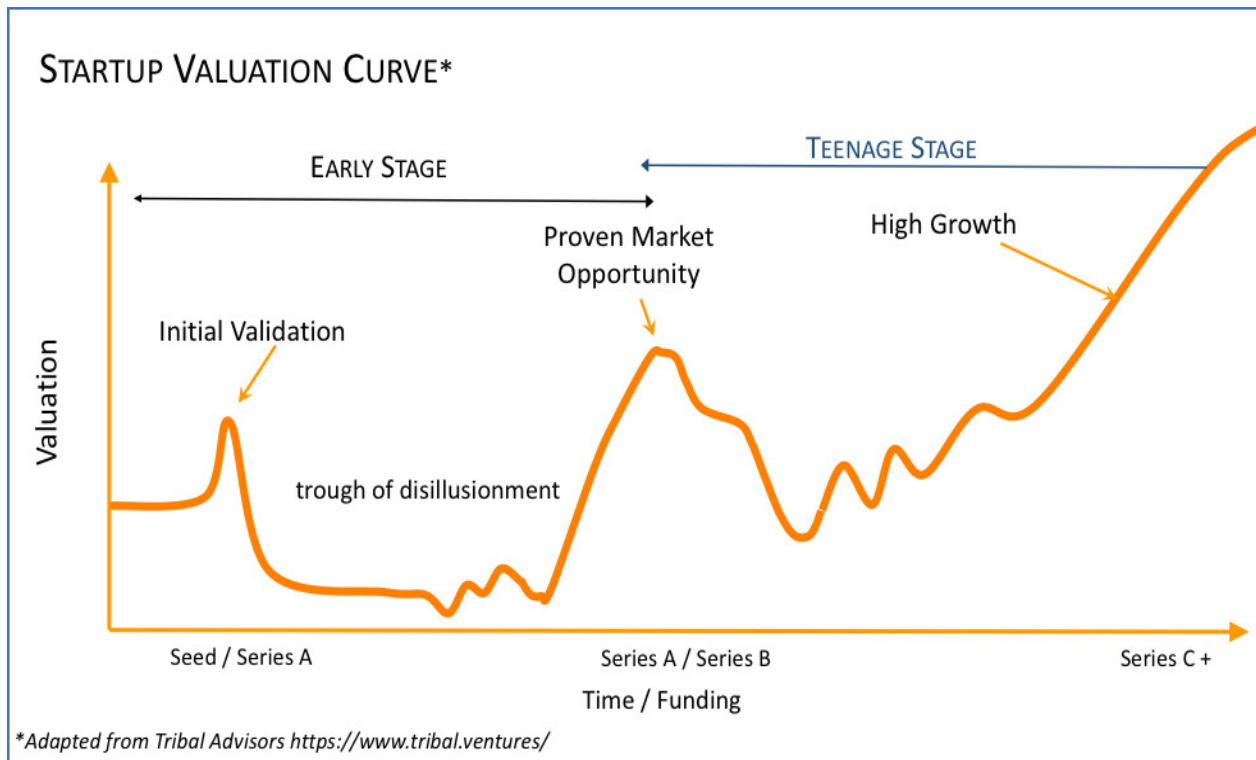


Figure 1. Startup valuation curve.

Valuation of New Economy Companies

Factors to Be Considered

There are a number of reasons why valuing NECs is difficult; for example, financial information might not be available due to minority shareholding, the company has not been generating much profit or even still incurring losses, company assets are mostly intangible in nature, no comparable companies exist because the business model is new, and the valuer does not fully understand the new technology and business model employed by the company. Despite these difficulties, proper valuation of NECs can be achieved if the following factors are considered.

1. Does the market perceive the company as a NEC? If it does, this market perception can affect a company's value tremendously. For example, although Tesla is an automotive company, it is classified as a NEC instead of traditional automotive company because of its use of new technology. Consequently, the value of Tesla's stock is significantly higher than the stocks of other traditional automotive companies.

2. The value of a NEC to an investor can be reduced as more investors are allowed to join in. This dilution of investment is unavoidable when there are multiple funding rounds with more than one investor. Series A (see Figure 1) investors commonly insist on obtaining 20% ownership (Finerva, 2019). Subsequent rounds of funding generally result in ownership dilution, with Series A and Series B rounds typically accounting for most of a company's dilution. This dilution effect will then decrease in later rounds of funding.

3. Even if a NEC has been incurring losses since inception, as long as investor confidence remains high and funding continues to flow in, the firm will be able to sustain its business and could become a successful company.

4. The choice of valuation methods (discussed in the following section) can lead to values that are significantly different.

5. Who are the investors? Are they successful and well-known venture capitalists or large and well-established financial institutions? Having such prominent investors in the mix is important because one can assume that these significant investors have undertaken due diligence in studying and analyzing the NEC's business and condition. They must have confidence in the company before they invest in it. Such investor confidence could lead to higher value of the company.

Valuation Methods

Several methods are available for estimating company values. Derived values using these different methods can differ significantly. The following three valuation methods are commonly used:

1. Market Method uses multiples to estimate company value. Commonly-used multiples include Price-to-Earnings (P/E), Price-to-Book Value (P/B), and Enterprise Value-to-Sales (EV/S). This method is frequently applied in financial market practice. The attractiveness of this approach is its ease of use; a company's value can be estimated quickly.

2. Income Method is appropriate when a company has a sufficiently-defined profitability trend since this approach calculates market value on the basis of profits. Future earnings have to be forecasted and expected cash flows identified. Value will then be calculated by discounting expected cash flows to the present.

3. In Cost-to-Adjusted-Net-Assets Method, cost of assets acquired is divided by net asset value. NECs do not usually use this approach because NECs are future-oriented. They focus on number of customers and growth instead of cost.

Valuation/Performance Metrics Used by NECs

Instead of using traditional financial information, specific market metrics are used in determining value of high-tech NECs. The following are examples of market metrics used in the valuation of NECs.

1. Average Revenue Per User (ARPU) is total revenue divided by number of subscribers. It is used by subscriber-based companies such as YouTube and Spotify.

2. Monthly Active User (MAU) measures the number of subscribers who use the company's services. It could be for a specific month or for a 30-day period. For example, if a company's app/services have been used 30,000 times by 15,000 subscribers in the last 30 days, MAU is 15,000. MAU is usually multiplied with ARPU to estimate total revenue.

3. Customer Stickiness is a tech-specific term for customer loyalty. It describes how often subscribers use a firm's app/services. To calculate stickiness, Daily Active User (DAU) is divided by MAU to get a percentage. The higher this percentage, the more often subscribers return to use the app/service. The closer the DAU is to MAU, the more frequently the MAUs are using the app/service, and the higher the stickiness—or engagement—is for the firm's app/service.

4. Lifetime Value per Customer (LTV) divided by Customer Acquisition Cost (CAC) can be used as a performance metric. LTV represents the value (revenue) a firm expects from an average customer during the time he/she remains a customer. For example, if each client of a company signs a two-year contract of \$100,000, the \$100,000 is LTV for the client. CAC represents the cost the company incurs to acquire each customer. This metric can be used on companies that have not yet generated any earnings.

Valuation of New Economy Companies Amid COVID-19

World Health Organization Timeline

COVID-19 rapidly and irrevocably reshaped the global business climate. The evolving situation and uncertainties created by the pandemic have significant implications on valuation practices. The following three dates in the timeline published by the World Health Organization (WHO) (2020) are important in the valuation of companies.

1. December 31, 2019: Wuhan Municipal Health Commission, China, reported a cluster of cases of pneumonia in Wuhan, Hubei Province. A novel coronavirus was eventually identified.

2. January 30, 2020: The Emergency Committee reached a consensus and advised the Director-General that the COVID-19 outbreak constituted a Public Health Emergency of International Concern (PHEIC).

3. March 11, 2020: Deeply concerned by the alarming levels of both spread and severity of COVID-19 as well as government inaction, WHO made the assessment that COVID-19 can be characterized as a pandemic.

The valuation of a business hinges on an understanding of the timeline of the COVID-19 pandemic. When determining the value of a company, COVID-19 is not a factor if the valuation date is on or before December 31, 2019, but it has to be factored in if valuation date is on or after March 11, 2020. For the period between those two dates, the valuer must assess what information was known and knowable as of the specific date of valuation, and determine how much that information should be taken into account when valuing the business.

Adjusting for COVID-19 in Valuations

The COVID-19 pandemic has evolved over the last two years. Although it seems to be under control in some countries due to the availability of vaccines, it is still a threat in most parts of the world. The pandemic created much uncertainty for businesses as travel restrictions, consumer uncertainty, and supply chain disruption result in asset devaluations.

Starting from March 31, 2020, earnings forecasts were revised downwards, which resulted in a reduction of company values. More specifically, if Income Method for valuation is used, all the variables used in the Discounted Cash Flow approach (DCF) have to be adjusted. As mentioned above, all expected future cash flows are discounted to the present in the DCF approach, which requires the use of a discount rate. The discount rate used is the Weighted Average Cost of Capital (WACC), which can be calculated as follows:

$$WACC = r_d (D / V) (1 - t) + r_e (E / V),$$

where

r_d = cost of debt,

r_e = cost of equity,

D = value of debt,

E = value of equity,

V = total value of debt and equity,

t = corporate tax rate.

As a component of WACC, the cost of equity is determined using the Capital Asset Pricing Model (CAPM) as follows:

$$r_e = r_{rf} + \beta (r_m - r_{rf}),$$

where

r_{rf} = risk-free rate,

$$\begin{aligned}\beta &= \text{systematic/market risk,} \\ r_m &= \text{market return,} \\ r_m - r_{rf} &= \text{market risk premium,} \\ \beta (r_m - r_{rf}) &= \text{risk premium for the specific asset.}\end{aligned}$$

CAPM calculates a required return based on a risk measure (β). It describes the relation between the risk of a particular asset, market return, and the expected return to an investor. It incorporates the theory that investors require additional return (risk premium) to compensate for additional risk undertaken.

Amid COVID-19 and the heightened uncertainty it created, the discount rate and the risk premium have to be adjusted. As for the discount rate, the Federal Reserve lowered short-term interest rates by 100 basis points (bps) on March 15, 2020, to a target range of 0% to 0.25%. This action by the Federal Reserve can be used as a reference point for adjusting the discount rate. However, the Federal Reserve started raising interest rate in March 2022. The increase in interest rate will lead to lower asset values. Another reference can be obtained from an Australian-based study done by PwC (2020). Drawing conclusions from five different valuation methods, PwC determined that, to factor in the uncertainty inherent in unadjusted cash flows, a COVID-19 risk premium of between 25 bps to 200 bps should be added to the discount rates. The number of bps to be added depends on the industry, a firm's level of financial and operational leverages, and the firm's ability to mitigate the impact of COVID-19. This PwC study also suggested that 25 bps to 150 bps should be added to the cost of equity for companies that are well capitalized. But for firms that have higher leverage and operate in industries that are less resilient, a higher equity premium should be applied. Ultimately, the quantification of COVID-19 risk requires a valuator's judgment.

Limitations on Inspections

In some cases, valuation is done by physical inspection of assets. Royal Institute of Chartered Surveyors (RICS) is a global professional organization that establishes and enforces standards for valuing, operating, and developing assorted types of real estate and property. The RICS Valuation Global Standards (2021) contain mandatory rules and guidelines for best practice for all members undertaking asset valuations. According to the Standards, valuers have to inspect businesses and assets before their values can be determined. However, travel restrictions and public health concerns in the face of the COVID-19 pandemic created barriers to valuation providers because they could not conduct site-visits. In cases with such limitations, RICS guidelines allow valuers to rely on third-party (e.g., management, owners) information as long as the information is authentic and may be relied on without adversely affecting the credibility of the valuation opinion. Even in the absence of an onsite inspection, the valuer may have access to enough information to proceed with the valuation assignment. Reasonable due diligence should still be undertaken to corroborate information obtained, with professional skepticism appropriately applied.

Conclusion

The new economy has given rise to a new class of companies called New Economy Companies. These new companies provide goods and services to their customers by using new technology. Their principal assets are mostly intangible with no clear market values. Many of them have massive amount of debt and have been incurring losses since inception. A combination of these factors and others makes it challenging for valuation providers to determine the market value of these companies. The COVID-19 pandemic created even

more uncertainties for the business world. Since ignoring the effects of COVID-19 would be unreasonable, valuation providers have to take these uncertainties into account and make appropriate adjustments to their valuation process. They should consider the use of multiple approaches and methods to arrive at an indication of value. They should also continue to rely on their professional expertise and judgment when performing valuations.

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