



UTHM
Universiti Tun Hussein Onn Malaysia

2023

**LAPORAN
SEMINAR INTERNASIONAL
RESEARCH DISSEMINATION**



**PRODI ILMU MANAJEMEN
SEKOLAH PASCASARJANA
UNIVERSITAS PAKUAN**



Yayasan Pakuan Siliwangi
Universitas Pakuan
Program Pascasarjana

Kejujuran, Integritas, Kreativitas, Kualitas, Harmoni

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**SURAT KEPUTUSAN
DIREKTUR PROGRAM PASCASARJANA
UNIVERSITAS PAKUAN
Nomor: 449/Kep/PPs/Unpak/VIII/2017**

Tentang

**PERILAKU KECENDEKIAWANAN
PROGRAM PASCASARJANA UNIVERSITAS PAKUAN**

DIREKTUR PROGRAM PASCASARJANA

- Menimbang** : 1. bahwa keterlibatan mahasiswa dalam pengembangan perilaku kecendekiawanan dalam hal kepedulian terhadap lingkungan dapat meningkatkan citra Program Pascasarjana Universitas Pakuan;
2. Bahwa sehubungan dengan hal tersebut di atas, perlu dikeluarkan Surat Keputusan tentang Perilaku Kecendekiawanan di Program Pascasarjana Universitas Pakuan.
- Mengingat** : 1. Undang-Undang Nomor 20 Tahun 2003, tentang Sistem Pendidikan Nasional;
2. Undang-Undang Nomor 12 Tahun 2012, tentang Pendidikan Tinggi;
3. Peraturan Pemerintah Nomor 4 Tahun 2014 tentang Penyelenggaraan Pendidikan Tinggi dan Pengelolaan Perguruan Tinggi;
4. Permenristekdikti Nomor 44 Tahun 2015 tentang Standar Nasional Pendidikan Tinggi;
5. Statuta Universitas Pakuan Tahun 2016;
6. SK Rektor No. 56/KEP/REK/VII/2017 tentang Pemberhentian dan Pengangkatan Pejabat Struktural di Lingkungan Universitas Pakuan Masa Bakti Tahun 2017-2022.
- Memperhatikan** : 1. Pengembangan kreativitas mahasiswa Program Pascasarjana;
2. Hasil Keputusan Rapat Tinjauan Manajemen Program Pascasarjana dan Evaluasi Wakil Mahasiswa Tahun 2017.

MEMUTUSKAN

- Menetapkan Pertama** : Jenis Perilaku Kecendekiawanan di lingkungan Program Pascasarjana meliputi:
1. Melakukan bantuan dalam penanggulangan kemiskinan;
2. Memberikan bantuan terhadap korban bencana alam;
3. Memberikan pelatihan-pelatihan;
4. Student Day;
5. Seminar.
- Kedua** : Keputusan ini mulai berlaku sejak tanggal ditetapkan dengan ketentuan akan dilakukan perbaikan dan atau perubahan sebagaimana mestinya apabila terdapat kekeliruan di dalam penetapannya.

Ditetapkan di : Bogor

Pada tanggal : 21 Agustus 2017

Direktur,



Prof. Dr. Ing. Soewarto Hardhienata

Tembusan:

1. Rektor Universitas Pakuan;
2. Wakil Rektor Bidang Akademik;
3. Wakil Rektor Bidang SDM dan Keuangan;
4. Para Wakil Direktur PPs Unpak;
5. Para Ketua dan Sekretaris Program Studi PPs Unpak.

TERM OF REFERENCE (TOR)
SEMINAR INTERNASIONAL
PRODI ILMU MANAJEMEN (S3)
SEKOLAH PASCASARJANA UNIVERSITAS PAKUAN

SEMINAR INTERNASIONAL: DISEMINASI HASIL PENELITIAN

1. Latar Belakang

Salah satu kewajiban seorang akademisi adalah menjalankan aktivitas penelitian sesuai dengan kompetensi yang dimilikinya. Penelitian merupakan proses penggalan fakta dan fenomena untuk diungkap secara ilmiah dan dapat dipertanggungjawabkan secara akademis, serta wajib dipublikasikan ke khalayak luas.

Setelah proses penggalan data dan informasi, pengolahan data, dan analisis, hasil penelitian selanjutnya dilakukan penulisan yang tersaji dalam bentuk *manuscript* sebelum dipublikasikan ke dalam jurnal. Manuscript yang baik tentu saja perlu masukan dari para ahli di bidangnya, sehingga substansi hasil penelitian menjadi lebih baik dan dapat dipertanggungjawabkan secara akademik.

Mahasiswa Prodi Ilmu Manajemen S3 sebagian telah menjalankan penelitian baik untuk kepentingan kuliah maupun untuk kepentingan lainnya sebagai bentuk pemenuhan kebutuhan profesi akademiknya. Hasil penelitian mahasiswa tersebut selanjutnya dituangkan dalam bentuk manuscript sebelum dikirim ke jurnal.

Prodi Ilmu Manajemen S3 bermaksud untuk mengundang ahli di bidang manajemen dan riset untuk melakukan review *manuscript* sebagai upaya masukan untuk menyempurnakan manuscript sehingga layak dan dapat dimuat pada jurnal internasional bereputasi.

Berdasarkan latar belakang di atas, maka Prodi Ilmu Manajemen S3 bermaksud untuk menyelenggarakan seminar internasional dengan tema: Diseminasi Hasil Penelitian. Dengan diselenggarakan kegiatan ini diharapkan mahasiswa semakin aktif untuk melakukan penelitian kredibel yang dapat dipublikasikan di jurnal internasional bereputasi.

2. Tujuan Seminar Internasional

Tujuan seminar ini adalah untuk mendiseminasikan hasil penelitian agar mendapatkan masukan dari ahli sehingga memenuhi kelayakan untuk diterbitkan di jurnal internasional bereputasi.

3. Narasumber (Reviewer)

Prof. Dr. Abdul Talib Bon - Faculty Technology Management and Business, UTHM.

4. Judul Penelitian Mahasiswa

Nama	Konsentrasi	Judul Penelitian
Tita Miawati 073220009	Human Resource Management	Increasing the Engagement of Health Workers in Government Hospitals and Private Hospitals (Empirical Study Using Comparative and Ex-Post Facto Study Approaches to State Civil Apparatus Health Workers of Government General Hospitals and Permanent Health Workers of Private General Hospitals in Tasikmalaya)
Woro Umayi Ananda '073219042	Financial Management	Capital Market Reaction to the Covid 19 Pandemic (Study on Biotechnology Companies Listed on Nasdaq)
Suharni Rahayu 073218044	Marketing Management	The Effect of Price Perception and E-Service Quality on Customer Satisfaction and Its Impact on Customer Loyalty in Using Go-Jek Services in Jakarta Dki Province

5. Tanggal, Tempat dan Waktu

Kegiatan ini akan dilaksanakan pada:

Hari/tanggal : Jum'at, 07 Juli 2023

Pukul : 16.00 WIB sd. 19.00 WB

Tempat : Auditorium Lt 3, Gedung Mashudi Sekolah Pascasarjana UNPAK

6. Peserta

Peserta penelitian ini adalah:

- a). Mahasiswa yang sedang menyusun disertasi
- b). Dosen pembimbing disertasi
- c). Peneliti
- d). Peminat masalah penelitian

7. Anggaran

Anggaran yang dibutuhkan untuk kegiatan sebagaimana ditampilkan pada tabel berikut.

No	Uraian	Qty	Satuan	Jumlah
1	Tiket Pesawat Pulang Jakarta-Malaysia	1	2,000,000	Rp 2,000,000
2	Honor Narasumber	1	1,500,000	Rp 1,500,000
3	Honor Keynote Speaker	1	750,000	Rp 750,000
4	Honor Moderator	1	500,000	Rp 500,000
5	Honor MC	1	300,000	Rp 300,000
6	Honor Kepanitiaan			Rp -
	Ka. Prodi	1	700,000	Rp 700,000
	Asisten Prodi	1	600,000	Rp 600,000
	Anggota/Staf Prodi dan IT	2	500,000	Rp 1,000,000
	Staf Pendukung	2	250,000	Rp 500,000
7	Konsumsi Narasumber dan Panitia	21	50,000	Rp 1,050,000
	Jumlah			Rp 8,900,000

Bogor, 22 Juni 2023



Prof. Dr. Hari Gursida, CA, MM, CPA.

EFFORTS TO INCREASE SALES THROUGH PRODUCT QUALITY AND SERVICE QUALITY IN THAI TEA ICE STONE DRINK AT OUTLET

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Pamulang University, Faculty of Economics and Business

INTRODUCTION

The importance of the existence of these businesses in the community is becoming increasingly important. This is due in addition to a change in the way consumers view the culinary business itself. Consumer behavior is essentially to understand why consumers do and what they do. Culinary has an impact on fulfilling refreshing needs for entertainment from everyday life or emotional states, one of which is visiting Thai Tea Ice Stone outlets. The culinary business is a type of business that is rife and many are offered in the region, ranging from the very simple to the very unique with a different look. Therefore, culinary entrepreneurs must be able to create new ideas with taste images in each variant of the drink so that consumers are more interested in visiting it. The presence of the Thai Tea Ice Stone drink, which was positively welcomed by the Indonesian public, especially at outlets, gave rise to many new competitors by offering similar products and also revived the Thai Tea sensation which was popular several years ago. Every culinary business process must be related to the right product development efforts where the products offered must be of good quality and are expected to be in accordance with the services provided. With good product quality, a company can maintain its business and be able to compete with other competitors.

The following describes the quality of the products offered by Thai Tea Ice Stone

Table 1.1

Product Quality Data on Thai Tea Ice Stone Drinks

No	Indicator	Standard	Real
1	<i>Reliability</i>	Lasting time of the drink = 5 hours	The holding time of the drink is no more than 1.5 hours
2	<i>Conformance</i>	Taste: Sweet and fresh	Taste: Not sweet and cool
3	<i>Serviceability</i>	Mixing: One or two steps in dispensing, and already in powder (Extract)	Mixing: There are many stages in mixing and many ingredients are mixed
4	<i>Aesthetics</i>	Viewed: Beautiful and strong and attractive	Viewed: It's slanted and the lid (cup) adhesive doesn't stick tightly

Source: Observation Results (2023)

Based on the results of observations from the table above, it can be concluded that there are several deficiencies in product quality that must be the concern of this business manager so that quality is improved to keep consumers from switching to other competitors.

In addition to product quality, service has an important meaning for business managers, without service the business manager will not get feedback or responses from consumers. Regarding the quality of service above, if the author looks at the phenomenon that occurs in the Thai Tea Ice Stone beverage product at the Outlet, based on the results of the observation of the preliminary study, the following phenomena can be found:

Table 1.2

Service Quality Data on Drinks Thai Tea Ice Stone Outlet

Information	Standard	Real
<i>Realibility</i>	In serving quickly & tactically	It takes too long to make the product so that consumers wait a long time
<i>Responsiveness</i>	Readiness to respond to consumer demand, when consumers order, directly make products	Asking repeatedly to consumers what flavor product to buy
<i>Berwujud</i>	Using modern tools or Thai tea stirrers	Still using conventional equipment, such as stirring drinks using spoons and the like
<i>Assurance</i>	Employees are responsible for remaking the product, if the product is defective when it reaches the consumer	Employees tend to be ignorant and do not pay attention to the steps in making products resulting in defects & are reluctant to take responsibility.
<i>Empahty</i>	Give individual attention to consumers.	Employees are not friendly so consumers often feel uncomfortable.

Source: Observation Results for the Year (2023)

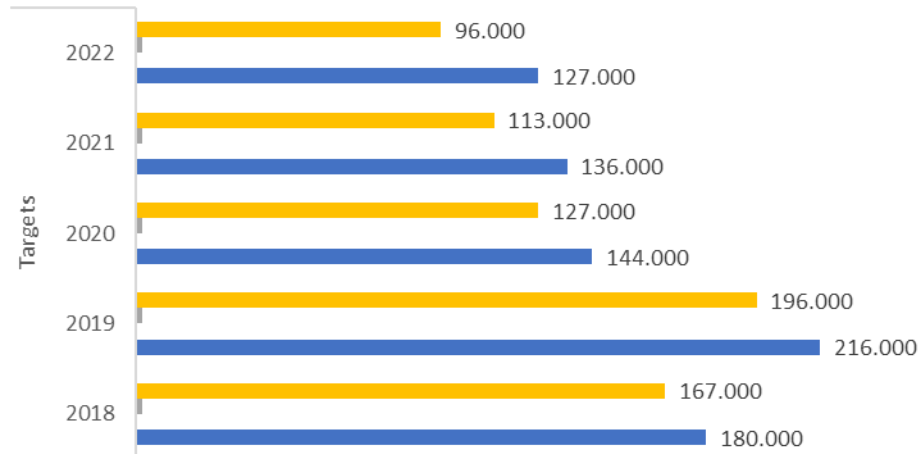
Based on the results of observations from the table above, it can be concluded that there are several deficiencies in service quality that must be a concern of the company so that service quality can be improved and also so that it becomes a consideration for consumers to buy Thai Tea products and to keep other consumers from switching to other competitors. . Product quality and service quality affect the increase in sales. Associated with an increase in sales, sales are influenced by the quality of the product and the quality of the service provided. If the quality of the product and service provided is in accordance with expectations, the consumer buys more so that there is an increase in sales which can provide benefits for Thai Tea Ice Stone itself, as for the increase in sales itself. are goods sold in the form of money or the number of goods sold in a certain period of time and in which it has a good service strategy.

Related to this, the authors see that based on the phenomena that occur in Thai Tea Ice Stone Outlet beverage products, based on the results of preliminary study observations, the following phenomena are obtained:

Graph 1.1

Sales Data on Thai Tea Ice Stone Drinks 2018-2022

Target and Sales



Source: Sales Data on Thai Tea Ice Stone Drinks Outlets (2022)

It can be seen in table 1.3 that for the last 3 (three) years Thai Tea has decreased and in 2020, sales have fluctuated. Increases and decreases can occur because the level of satisfaction with the quality of products and services is not maximized which results in dissatisfaction with consumers and it is likely that consumers will look for other alternatives. This phenomenon makes the Thai Tea Ice Stone drink to make more efforts to improve the quality of its products and services so that regular Thai Tea consumers can continue to consume these products and so that the Thai Tea Ice Stone drink can continue to win the competition in the market considering the many competitors that are currently emerging.

THEORETICAL BASIS

Product quality

Damiati (2017) "Product quality is the overall consumer evaluation of the superior performance of an item or service. Kotler and Armstrong (2014), product quality is a product or service characteristic that depends on its ability to satisfy stated or implied customer needs. According to the opinion of some of the experts above, the authors can draw the conclusion that product quality is the totality of goods or services related to the wishes of consumers whose superiority of the product is worthy of being sold according to customer expectations. The indicators used to measure product quality according to Garvin in Damiati's book (2017) Performance, Additional features or features, Reliability, Durability, Ease of repair, Aesthetics, Conformity, Perceived quality.

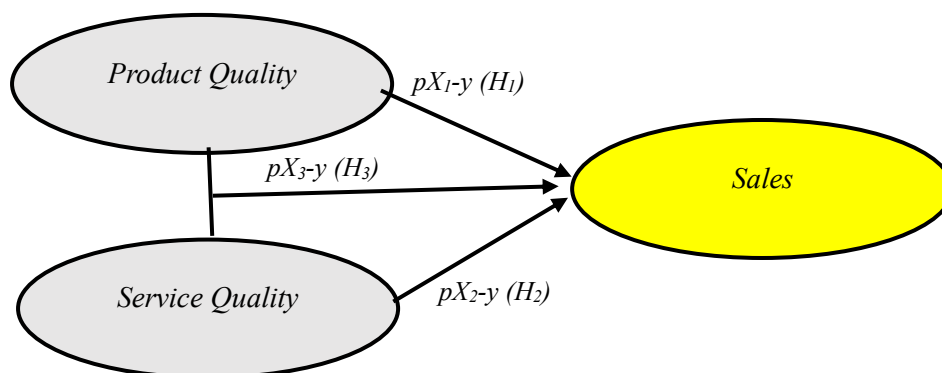
Service quality

Tjiptono (2014) "Is the level of excellence (excellence) that is expected and control over these advantages to meet the desires of consumers while Goetsch & Davis in Sari (2016) "Defining service quality is a dynamic condition related to service products, people, processes, and an environment that is able to meet and or exceed consumer expectations, it can be concluded that service quality is a measure of how good the service level is perceived by consumers so that a comparison between perceived service and what is expected is able to meet even more expectations. The indicators measure the service quality of Tjiptono (2012), namely direct evidence, reliability, responsiveness, assurance, empathy.

Sale

Schiffan in Rusmayadi (2018), sales volume is the level of sales obtained by the company for a certain period in units (units/total/rupiah). And according to Swastha & Irawan in Putra (2017) sales volume is the maximum sales level that can be achieved by the seller. So sales volume can be said to be the result of sales activities as measured by units. The indicators used to measure the increase in sales of Swastha and Irawan in Putra (2017: 19) namely achieving a certain sales volume, obtaining profits, supporting company growth.

Framework of thinking



Hypothesis

- Ha1: $\rho \neq 0$: There is a significant influence between product quality on increasing outlet sales at Thai Tea Ice Stone.
- Ha2: $\rho \neq 0$: There is a significant influence between service quality and sales increase at Thai Tea Ice Stone Outlets.
- Ha3: $\rho \neq 0$: There is an influence between product quality and service quality on increasing sales at Thai Tea Ice Stone Outlets.

RESEARCH METHODS

Types of research

The type of research used in this research is quantitative, quantitative research is used in this research, because the data that is the object of this research is quantitative data in the form of numbers.

Population and Sample

"Population is a generalization area consisting of objects or subjects that have certain quantities and characteristics set by researchers to be studied and then conclusions drawn." In this study, 127,000 consumers of Thai Tea Ice Stone products were used as the population. In 2020, researchers used a simple random sample technique (sample random sampling). With the slovin formula and 10% error, a sample of 100 respondents was obtained.

Data collection

In this study, primary data was used which consisted of participant observations and closed questionnaires, while the secondary data used references from books.

Data analysis

In this study using an instrument test consisting of a validity test and reliability test as well as the classical assumption test. From the instrument test, it is followed by simple and multiple linear regression analysis as well as correlation and determination.

RESULTS AND DISCUSSION

Descriptive Analysis

Table 4.1 Characteristics of Respondents

Gender	
Male	39
Female	61
Age	
< 21 Years Old	17
22-34 Years Old	81
35-44 Years Old	2
>45 Years Old	0
education	
Equivalent High School	60
Diploma	23
Bachelor	17
Work	
Work	65
Student / Student	28
Etc	7
Income	

Data Processed 2023

From these data, it is known that the majority of those who buy Thai Tea Ice Stone are women between the ages of 22-34 and have a high school education with an average job already working. This proves that the target of Thai Tea Ice Stone is teenagers.



Figure 4.1 Variable Descriptive

From the results of this analysis, the quality of the product offered is good because a score of 4.04 was obtained and it was reinforced by the highest score of 4.29 in the statement "The color of the Thai Tea Ice Stone drink is bright and looks fresh" so that many respondents chose the Thai Tea Ice Stone drink product. because the raw materials used by these products are of good quality so that the output of these drinks looks bright and fresh. Whereas the quality of service provided was also good, a score of 4.07 was obtained and reinforced with the highest score of 4.16, namely in the statement "Thai Tea Ice Stone beverage crew serves friendly/smiling" this proves that the service provided by employees to Thai Tea Ice Stone consumers given as much as possible through facial expressions and body gestures to serve so that consumers get quality and excellent service. While the increase in sales at the katana was high because it obtained an average score of 4.15 and was reinforced by the highest score of 4.26, namely in the statement "Crew or employees of Thai Tea Ice Stone drinks must be able to maintain product quality and service quality so that the company's growth can continue to increase"

This proves that if product quality and service quality can be maintained and maintained by all internal components at Thai Tea Ice Stone outlets, this can have an impact on increasing company growth, which of course is highly desired by all companies selling their products.

Test Instrument

From the results of the validity and reliability tests, the data is said to be valid and reliable and passes the classic assumption test.

Quantitative Analysis

Table 4.2 Quantitative Analysis

Variable	Regression	Correlation	Determination	hypothesis
Quality Table 4.2 Product Quantitative Analysis - Increase in Sales	$Y = 1.267 + 0.366 (X1)$	0.847	0.764	The t value of the product quality variable obtained is 15,805 with a sig.0,000 value, so that t count > t table (15,805 > 1,984) and the significance value is smaller than the probability value or 0,000 <0.05, then Ha1 is accepted
Service Quality- Sales Improvement	$Y = 3.412 + 0.529 (X2)$	0.919	0.845	The service quality value obtained is 23,127 with a sig.0.000 value, so that t count > t table (23,127 > 1,984) and the significance value is smaller than the probability value or 0.000 <0.05, then Ha2 is accepted
Product Quality and Service Quality-Sales Increase	$Y = 1.075 + 0.118 (X1) + 0.398 (X2)$	0.932	0.869	The calculated F value is greater than the F table or (320,900 > 3,090), this is also reinforced by the significance of 0,000 <0.05, then Ha3 is accepted

Source: Olah data, 2023

From the table, it is known that the hypothesis either partially or simultaneously has an influence on increasing sales and a very strong relationship so that it is in line with previous research that was proposed.

CONCLUSION

1. Product quality has a very strong and significant positive influence on increasing sales where the value of t count $>$ t table or $(15,805 > 1,984)$ is obtained and the significance value is smaller than the probability value or $0.000 < 0.05$.
2. Service quality has a very strong and significant positive influence on increasing sales where the value of t count $>$ t table $(23,127 > 1,984)$ is obtained and the significance value is smaller than the probability value or $0.000 < 0.05$.
3. Product quality and service quality have a very strong and significant positive influence simultaneously on increasing sales where the calculated F value is greater than F table or $(320,900 > 3,090)$, this is also strengthened by a significance of $0,000 < 0.05$.

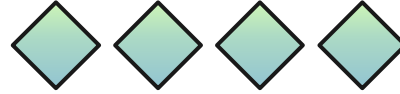
SUGGESTION

1. The Thai Tea Ice Stone outlet must further improve the quality of its products in terms of branding so that it is better known by the wider community.
2. Thai tea ice stone outlets must further improve the quality of their services in terms of product knowledge or knowledge/mastery of the products being sold so that consumers get a more general picture of the product and the benefits of the product that will be consumed.
3. The crews on duty at the Thai tea ice stone outlet must further improve their communication and team work with each other so that the work carried out is easier and lighter because it is done together wherever it is done as well as possible will make improvements much better profit at thai tea ice stone outlet.
4. The level of variable relationship, all variables have a very strong relationship, if it is even better, the outlet will maintain product quality and service quality provided to consumers and implemented at outlets, so that consumers can get the products and services they want so that these consumers can repurchase and recommend it to others, of course this will affect product sales which can increase.

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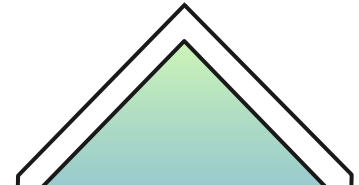
Sewaka, Sewaka, et al. "The Effect of Customer Satisfaction and Service Quality of Banking Products on Loyalty of Bank Customers in Tangerang." *International Journal of Artificial Intelligence Research* 6.1.1 (2023).

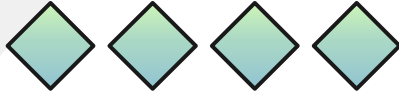


Efforts To Increase Sales Through Product Quality And Service Quality In Thai Tea Ice Stone Drink At Outlet



Nurmin Arianto
Suharni Rahayu





Introduction



Product Quality

The culinary business is a type of business that is rife and many are offered in the region, ranging from the very simple to the very unique with a different look. Therefore, culinary entrepreneurs must be able to create new ideas with taste images in each variant of the drink so that consumers are more interested in visiting it. The presence of the Thai Tea Ice Stone drink, which was positively welcomed by the Indonesian public, especially at outlets, gave rise to many new competitors by offering similar products and also revived the Thai Tea sensation which was popular several years ago.

The following describes the quality of the products offered by Thai Tea Ice Stone:



No	Indicator	Standard	Real
1	Reliability	Lasting time of the drink = 5 hours	The holding time of the drink is no more than 1.5 hours
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Based on the results of observations from the table above, it can be concluded that there are several deficiencies in product quality that must be the concern of this business manager so that quality is improved to keep consumers from switching to other competitors

Service Quality



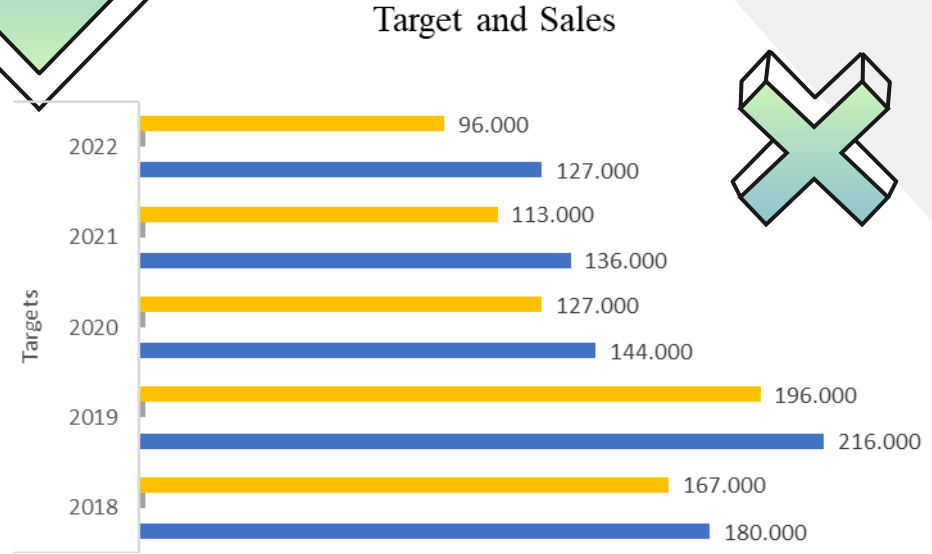
Regarding the quality of service above, if the author looks at the phenomenon that occurs in the Thai Tea Ice Stone beverage product at the Outlet, based on the results of the observation of the preliminary study, the following phenomena can be found:

Information	Standard	Real
Realibility	In serving quickly & tactically	It takes too long to make the product so that consumers wait a long time
Responsiveness	Readiness to respond to consumer demand, when consumers order, directly make products	Asking repeatedly to consumers what flavor product to buy
Tangibility	Using modern tools or Thai tea stirrers	Still using conventional equipment, such as stirring drinks using spoons and the like
Assurance	Employees are responsible for remaking the product, if the product is defective when it reaches the consumer	Employees tend to be ignorant and do not pay attention to the steps in making products resulting in defects & are reluctant to take responsibility.
Empathy	Give individual attention to consumers.	Employees are not friendly so consumers often feel uncomfortable.

Based on the results of observations from the table above, it can be concluded that there are several deficiencies in service quality that must be a concern of the company so that service quality can be improved and also so that it becomes a consideration for consumers to buy Thai Tea products and to keep other consumers from switching to other competitors

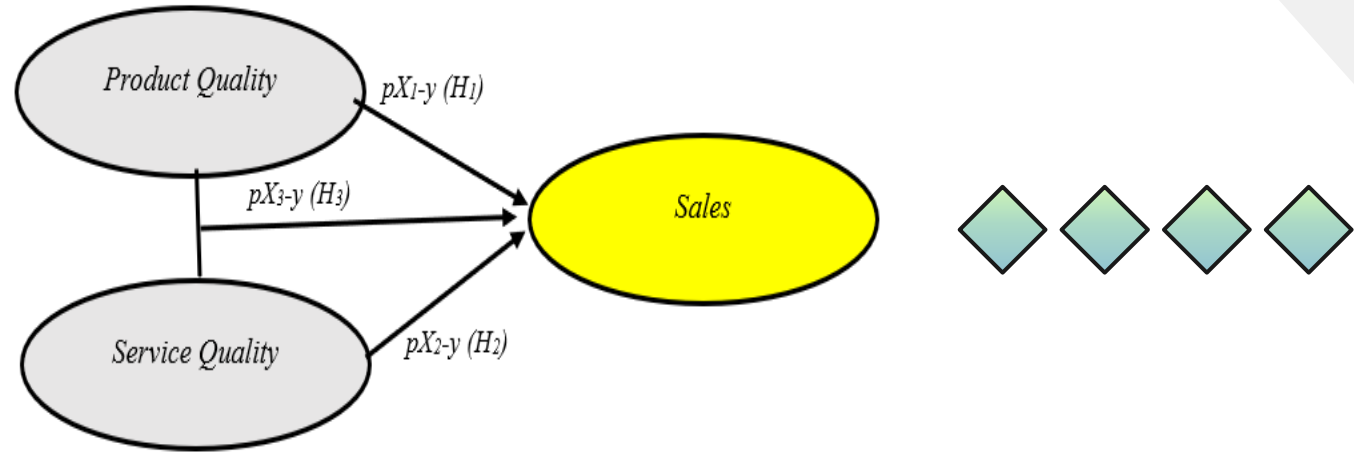
To Increase Sales

Related to this, the authors see that based on the phenomena that occur in Thai Tea Ice Stone Outlet beverage products, based on the results of preliminary study observations, the following phenomena are obtained:



It can be seen in table 1.3 that for the last 3 (three) years Thai Tea has decreased and in 2020, sales have fluctuated. Increases and decreases can occur because the level of satisfaction with the quality of products and services is not maximized which results in dissatisfaction with consumers and it is likely that consumers will look for other alternatives

Framework of thinking



Hypothesis

Ha1: $\rho \neq 0$: There is a significant influence between product quality on increasing outlet sales at Thai Tea Ice Stone.

Ha2: $\rho \neq 0$: There is a significant influence between service quality and sales increase at Thai Tea Ice Stone Outlets.

Ha3: $\rho \neq 0$: There is an influence between product quality and service quality on increasing sales at Thai Tea Ice Stone Outlets.

RESEARCH METHODS

Types of research

The type of research used in this research is **quantitative**, quantitative research is used in this research, because the data that is the object of this research is quantitative data in the form of numbers.

Population and Sample

"Population is a generalization area consisting of objects or subjects that have certain quantities and characteristics set by researchers to be studied and then conclusions drawn." In this study, **127,000 consumers of Thai Tea Ice Stone products** were used as the population. In 2020, researchers used a simple random sample technique (sample random sampling). With the slovin formula and 10% error, a sample of **100 respondents** was obtained.

Data collection

In this study, primary data was used which consisted of **participant observations and closed questionnaires**, while the secondary data used **references from books**.

Data analysis

In this study using an instrument test consisting of a validity test and reliability test as well as the classical assumption test. From the instrument test, it is followed by simple and multiple linear regression analysis as well as correlation and determination.



Results And Discussion

- From These Data, It Is Known That The Majority Of Those Who Buy Thai Tea Ice Stone Are Women Between The Ages Of 22-34 And Have A High School Education With An Average Job Already Working. This Proves That The Target Of Thai Tea Ice Stone Is Teenagers.
- From The Results Of This Analysis, The Quality Of The Product Offered Is Good Because A Score Of 4.04
- Whereas The Quality Of Service Provided Was Also Good, A Score Of 4.07
- The Increase In Sales At Was High Because It Obtained An Average Score Of 4.15.

From the Quantitative Analysis, it is known that the hypothesis either partially or simultaneously has an influence on increasing sales and a very strong relationship so that it is in line with previous research that was proposed.





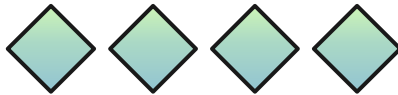
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CONCLUSION

1. Product quality has a very strong and significant positive influence on increasing sales where the value of t count $>$ t table
 2. Service quality has a very strong and significant positive influence on increasing sales where the value of t count $>$ t table
 3. Product quality and service quality have a very strong and significant positive influence simultaneously on increasing sales where the calculated F value is greater than F table
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THANK YOU



CAPITAL MARKET REACTIONS TO THE COVID-19 PANDEMIC IN BIOTECH COMPANIES LISTED ON NASDAQ

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ABSTRACT

This study aims to determine and analyse the capital market's reaction to the Covid 19 Pandemic in biotechnology companies listed on the Nasdaq. The method used in this study uses a type of quantitative method. This study uses an event study. The sampling method in this study was carried out using a nonprobability random sampling approach. The announcement of the COVID-19 pandemic by the WHO and the commitment to produce a COVID-19 vaccine have had not a significant impact on abnormal stock returns of biotech companies listed on the NASDAQ stock market. However, there is significant effect on the trading volume activities, liquidity of biotech company stocks and the volatility of biotech company stocks. So, it shows that the NASDAQ stock market reacts sensitively to announcements about the COVID-19 pandemic and efforts to produce COVID-19 vaccines by biotech companies. So, it shows that the NASDAQ stock market reacts sensitively to announcements about the COVID-19 pandemic and efforts to produce COVID-19 vaccines by biotech companies. This shows that the COVID-19 pandemic has significantly impacted the stock market, especially in the biotechnology sector. The event study approach is used to test the market with a semi-strong form of market efficiency by demonstrating that the stock price reflects all published information (all publicly available information).

Keywords: COVID-19 pandemic, biotechnology companies, NASDAQ, event study, abnormal stock returns, trading volume, liquidity, volatility, market efficiency.

INTRODUCTION

The World Health Organization (WHO), or the world health organization, on March 11, 2020, declared the outbreak of the new coronavirus COVID 19 a global pandemic (Sohrabi et al., 2020). At the press conference, WHO Director-General Dr. Tedros Adhanom Ghebreyesus stated that over the past two weeks, the number of cases outside China has increased 13-fold, and there has been a three-fold increase in cases in several countries. WHO asks the countries in the world to take precautionary measures against the virus (Cucinotta & Vanelli, 2020).

Protecting communities and health systems from spreading virus outbreaks requires widespread isolation, containment, and closure measures. The increase in COVID-19 cases in China resulted in the closure of factories in the Wuhan area and the dismissal of many workers aimed at reducing the harmful effects of the virus. These impacts economic losses in China (Ozdurak et al., 2020).

Apart from China, a high number of cases of COVID-19 have been reported worldwide, especially in the United States (US), Italy, and Spain. Every country worldwide has imposed lockdowns and social restrictions to minimize the transmission of this deadly virus. The social restriction policy adopted has hampered the economic activities of the global community (Indrayono, 2021).

The global economy is projected to contract sharply by 3% in 2020 as a result of the pandemic. Data from the Organization for Economic Co-operation and Development (OECD) (Ozdurak et al., 2020) states that the world economy is facing its lowest growth rate since 2009 due to the coronavirus outbreak.

Figure 1.1 shows stock indices in several countries dropping to their lowest level on March 23, 2020. Charts of the main stock indices of the US, UK, Germany, France, Russia, Japan, Hong Kong, China, Singapore, Australia, India, South Korea, Brazil, and Mexico for the period January 1 to mid-May 2020, when the COVID 19 pandemic was still occurring throughout the world (Indrayono, 2021).

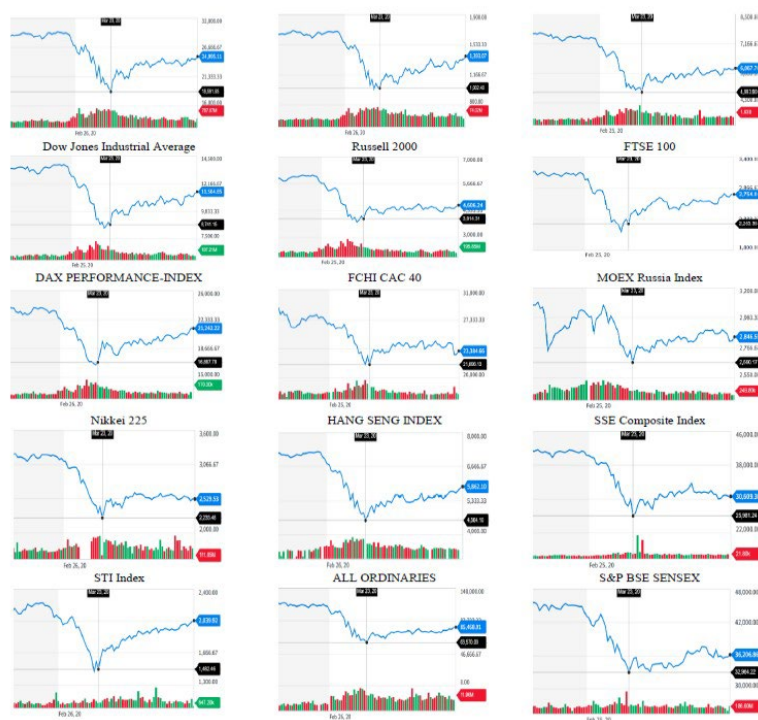


Figure 1. Stock Indices in several Countries During the Financial Crisis (Indrayono, 2021)

The consequence of the pandemic event was increased panic and market downturns. The situation is deteriorating due to the spread of the disease beyond geographical boundaries between countries and continents. Returns on relatively safe commodities, such as gold (albeit the most volatile), turned negative as the coronavirus spread across the US (Indrayono, 2021).

Consumer and corporate panic in all markets disrupts consumption habits and creates anomalies. The decline in global stock indices showed the global financial market response. Decisions made by investors on the spread of bad news show financial contagion like the contagion phenomenon. Adverse effects on the financial sector are the reaction of several sectors and regions to an economic shock. The previous global financial crisis showed that the financial sector was sensitive to shocks (Tiryaki & Ekcinci, 2015) (Ozdurak et al., 2020).

Panyagometh, K. (2020) shows that most of the securities in the Thai stock market have been affected by the pandemic, as reflected in the abnormal returns and stock volatility compared to the period before the COVID-19 outbreak. The same research results are also shown on the Turkish stock exchange (GÖKER et al., 2020), China (Al-Awadhi et al., 2020): (Liu et al., 2020), Canada, and the United States. (Ozdurak et al., 2020) produced a similar study and adopted the EGARCH method to examine the volatility that varies over time for changes in cases of transmission of COVID-19.

Most countries impose movement restrictions (lockdowns) to contain the spread of the disease. This policy has a broad economic impact affecting trading volume activities. The COVID-19 pandemic has far-reaching economic consequences due to the highly contagious nature of the virus. At the start of the pandemic, the financial impact arose mainly due to the disruption of manufacturing issues on the supply side (Zaremba et al., 2021) (Khan et al., 2020).

Market volatility is also influenced by the global pharmaceutical and biotechnology sector related to health crises such as infectious diseases due to the COVID-19 pandemic. Therefore, it is important to measure the influence of market behavior and the stock performance of companies operating in the pharmaceutical and biotechnology sector. In the period following the announcement of the pandemic, companies in the pharmaceutical and biotechnology sectors, such as GlaxoSmithKline, Vir Biotechnology, Pfizer Inc., and BiNTech, decided to invest in the development of coronavirus drugs, including the creation of a COVID-19 vaccine (Ozdurak et al., 2020).

The latest data from Eikon, 2020 reveals that the market value of pharmaceutical and biotechnology stocks increased when President Trump was infected with COVID-19. Throughout the pandemic, most of the stock markets involved in vaccines or drugs for COVID-19 were still ahead in terms of stock returns. Figure 2. shows the five best-performing pharmaceutical and biotechnology stocks since the pandemic's start. Several biotechnology companies have benefited from the COVID19 outbreak, such as Novavax, Moderna, Inovio Pharmaceuticals, and Gilead Sciences. Table 1. shows several stocks of pharmaceutical and biotechnology companies that have increased their stock performance during the pandemic.

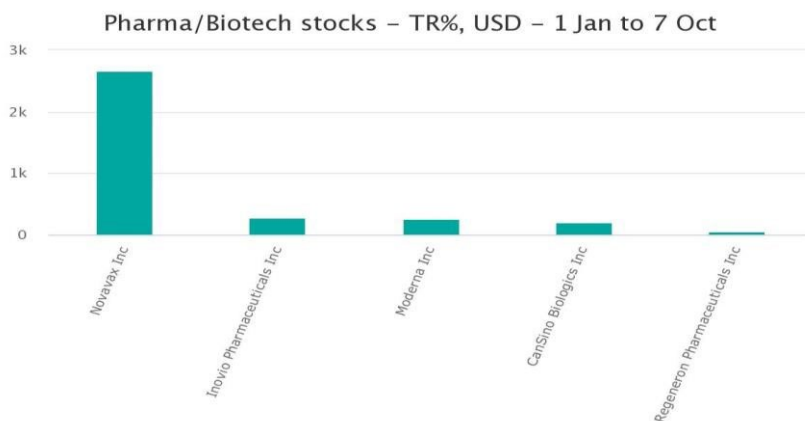


Figure 2. Stock Market for Pharmaceutical/Biotech Companies for the period January 1 - October 7, 2020 Source: Eikon, 2020

Description: TR%: Total Revenue

Table 1. Market Value of Pharmaceutical/Biotechnology Company Shares

Pharma & Biotech Stock Market	TR%, USD
Novavax Inc	2663.8%
Inovio Pharmaceuticals Inc	281.2%
Moderna Inc	270.0%
CanSino Biologics Inc	198.4%
Regeneron Pharmaceuticals Inc	57.6%
Eli Lilly and Co	15.0%
AstraZeneca PLC	8.3%
Johnson & Johnson	3.4%
Gilead Sciences Inc	-0.4%
Pfizer Inc	-4.1%
GlaxoSmithKline PLC	-20.0%

Source: Fikon. 2020

Description: TR%: Total Revenue

Research shows that the COVID-19 pandemic has affected US biotechnology companies such as Pfizer and Moderna (Piñeiro-Chousa et al., 2022). The results show that the two companies' volatility changes from one period to the next. During the pre-COVID period, corporate volatility was higher than the effect of market volatility on the previous day, but during the COVID-19 period, the opposite was true. This research is in line with the study of Baker et al. (2020). This change could be caused by trading volume activity when there was a policy limiting individual mobility during COVID-19.

The current world economic turmoil is a secondary impact of the global health crisis caused by the COVID-19 pandemic. Obstacles in supply chains and consumer demand hamper national and global economic growth. The withdrawal of investor funds by selling shares from the stock exchange, causing the stock market index to drop drastically compared to the value of its closing price on the same exchange at the end of 2019. Data shows that world stock exchanges experienced a decline between December 31, 2019, and March 23, 2020, four days after the world health organization (WHO) declared the COVID-19 pandemic (Indrayono, 2021). A financial crisis in the stock market is considered to have occurred when the index declined by more than 20% in developing countries and 35% in emerging markets (Patel & Sarkar, 1998) (Indrayono, 2021). This phenomenon last occurred during the 2008-2009 global financial crisis. It originated on Wall Street and harmed investors, banks, and economies worldwide (Indrayono, 2021).

Research shows that the COVID-19 outbreak has negatively affected China's traditional industries, such as transportation, mining, electricity & heating, and the environment (Liu et al., 2020). However, the research results also show opportunities for developing high-tech industries such as manufacturing, information technology, education, and health that are unaffected significantly. The results align with research (Sayed & Eledum, 2021) on the average stock return for 21 industrial groups in Saudi Arabia. Three industry groups involving telecommunications, software, and healthcare moved from negative to positive, while food and staples retail, pharmaceuticals, and Biotechnology remained positive before and after the COVID-19 pandemic.

WHO and its partners are committed to accelerating the development of a COVID-19 vaccine while maintaining the highest safety standards. In the past, vaccines were developed through a series of steps that could take years. With the urgent need for a COVID-19 vaccine, unprecedented financial investment and scientific collaboration are driving changes in vaccine development, such as concurrent clinical trials of several vaccines.

WHO, as one of the lead agencies along with the Global Alliance for Vaccines and Immunization (Gavi) and CEPI (Coalition for Epidemic Preparedness Innovations), are undertaking a global effort known as COVAX, which accelerates the discovery of safe and effective COVID-19 vaccines by pooling resources from various countries. Investing in vaccine research and development, COVAX helps increase vaccine manufacturing capabilities and commitment to purchase vaccine doses if the vaccine proves safe and effective, to distribute two billion doses in places around the world where these doses are expected to be most needed by the end of the year 2021.

COVAX is a vaccine pillar of the Access to COVID-19 Tools (ACT) Accelerator, a global collaboration to accelerate development, production, and equal access to COVID-19 tests, treatments, and vaccines. WHO provides global coordination and member country support in vaccine safety monitoring. WHO's task is to develop target product profiles for COVID-19 vaccines and provide R&D technical coordination with COVAX partners; WHO has developed compensation schemes as part of time-limited indemnification commitments and obligations.

WHO announced the first clinical trial of the COVID-19 vaccine on March 19, 2022. The first clinical trial is a form of vaccine production commitment by several institutions and companies to register the first COVID-19 vaccine and can later be used to receive emergency use validation from WHO. The list of biotechnology companies to carry out vaccine production opens the door for countries to accelerate the process of regulatory approval in their respective countries used as a condition for importing and administering vaccines. This activity also allows UNICEF to obtain vaccines for distribution to countries in need.

Investments in research and development carry risks for pharmaceutical and biotechnology companies, the results of clinical trials being a major inflection point in that process. The release of clinical trial results is an economically significant event and has a meaningful effect on the market value of biopharmaceutical companies (Hwang, 2013). Until now, there have not been many research results analysing the impact of the pandemic and the announcement of a COVID-19 vaccine commitment, especially on the stock market in the pharmaceutical and biotechnology sector, especially on stock market reaction variables such as abnormal returns, liquidity, price volatility, trading volume.

Based on the description explained above, this study aims to analyze the reaction of the capital market to the Covid 19 Pandemic by studying biotechnology companies listed on the Nasdaq). So this research can provide an overview of the influence of the COVID-19 pandemic on the capital market, especially on biotechnology companies listed on NASDAQ. In this study, researchers were able to identify factors that influenced the stock price movements of biotechnology companies during the COVID-19 pandemic and explain the impact of the COVID-19 pandemic on the capital market.

METHODS

The method used in this study uses a type of quantitative method, namely research or method based on empirical and concrete data, objective, observable, measurable, rational, and systematic. This research uses an event study. The type of data that will be used in this study is in the form of quantitative data. The sampling method in this study was carried out using a nonprobability random sampling approach. This research focuses more on the announcement of the COVID-19 pandemic outbreak issued by WHO and the announcement of the commitment to produce the COVID-19 vaccine for the period from October 2019 to December 2021, especially its effect on changes in stock prices, stock trading volume on the capital market, liquidity, and volatility due to

announcements. The COVID-19 pandemic and the announcement of the commitment to produce a COVID-19 vaccine are some pieces of information that contain economic value for the market. This research period was chosen because it is the latest data and has complete information. The data analysis method used in this research is a statistical analysis method using multiple regression equations.

RESULTS AND DISCUSSION

The WHO's announcement of the COVID-19 pandemic affected the abnormal return (AR) of Biotech companies on the NASDAQ stock market.

H1 in this study is: "There are differences in the abnormal returns on the stock returns of biotech companies listed on the NASDAQ stock market between before and after the announcement of the COVID-19 pandemic by WHO". The AR value does not have a significant value or is greater than 0.05 during the announcement of the COVID-19 pandemic by WHO. This shows that the H1 hypothesis cannot be accepted, so it can be concluded that there is no significant AR around the occurrence of the announcement of the COVID-19 pandemic by WHO and indicates investors are responding to the announcement of the COVID-19 pandemic. Figure 3 shows investors obtaining abnormal returns inconsistently. In several periods before and after investors obtained negative abnormal returns, things like this indicated that investors were more inclined to sell securities, as indicated by most observations that the value of abnormal returns was negative throughout the observation period.

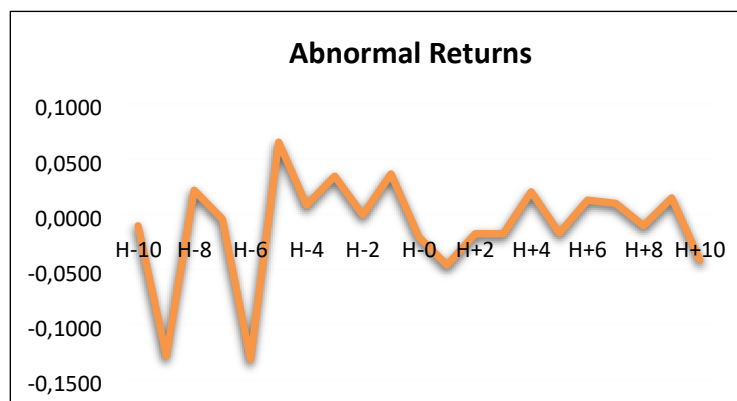


Figure 3. Graph of Abnormal Returns for Biotech Companies during the Announcement Period of the COVID-19 Pandemic by WHO

Source: Processed data (2022)

The study results show that the H1 hypothesis is not accepted. There is a difference in abnormal stock returns of biotech companies listed on the NASDAQ stock market between before and after the announcement of the COVID-19 pandemic by WHO. The study results show that the abnormal return value after being higher than before the announcement of the COVID-19 pandemic by WHO. This shows that the market is responding to the announcement of the COVID-19 pandemic by WHO. At the time of the announcement, investors did not trust biotech companies that could provide returns or profits with predictions of future profits, especially during the health crisis period. This is also because investors can see or predict that the return they will get will not be higher than the expected return. Apart from that, it can also be caused because investors do not anticipate the announcement of the COVID-19 pandemic by WHO.

Previous similar findings by (Alam et al., 2020). The results of this study are also consistent with those (of Liu et al., 2020); the results showed a significant abnormal return. In other words,

investors think that outbreaks of infectious diseases benefit the stock performance of biotechnology companies, but a health crisis can affect the stock performance of biotechnology companies; This shows that the health crisis events change investors' judgments and can explain why there are significant abnormal returns.

The announcement of the commitment to produce the COVID-19 vaccine affected the abnormal return of Biotech companies on the NASDAQ stock market.

H2 in this study, namely: "There is a difference in abnormal stock returns for biotech companies listed on the NASDAQ stock market between before and after the announcement of the commitment to produce the COVID-19 vaccine". The abnormal return has no significant value of greater than 0.05 during the announcement of the commitment to vaccine production, which can be seen in most of the period. This shows that the H2 hypothesis cannot be accepted, so it can be concluded that there are no differences in the abnormal returns on the stock returns of biotech companies listed on the NASDAQ stock market between before and after the announcement of the commitment to produce the COVID-19 vaccine. Figure 4 shows investors obtaining abnormal returns inconsistently. There were several periods when investors obtained negative abnormal returns; something like this indicated that investors were more inclined to sell securities, but it was also observed that there were positive abnormal returns during some periods of the announcement of the commitment to produce the COVID-19 vaccine.

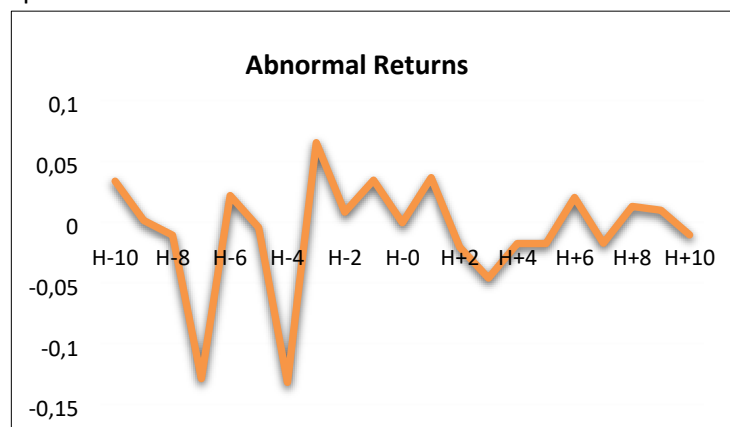


Figure 4. Graph of Abnormal Returns of Biotech Companies in the Commitment Announcement Period for COVID-19 Vaccine Production

The results of the study show that the H2 hypothesis cannot be accepted, and it can be said that there is no difference in the abnormal return on the shares of biotech companies listed on the NASDAQ stock market between before and after the announcement of the commitment to produce the COVID-19 vaccine. The results show that the abnormal return value after is higher than before the announcement of the vaccine production commitment to COVID-19. This shows that the market is responding by announcing a commitment to producing a COVID-19 vaccine. Investors trust biotech companies that can provide returns or profits with predictions of profits to be obtained in the future, especially during a health crisis. This is also because investors can see or predict that the return, they will get will not be higher than the expected return. It can also be caused because investors do not anticipate the announcement of the COVID-19 vaccine commitment.

The data from this study are partially similar to previous research (Wang et al., 2013). Studies show significantly positive abnormal returns before the announcement and significantly negative abnormal returns after the announcement (Wang et al., 2013). This may be due to reactions from news announcements by investors that biotech companies are considered an alternative stock

investment because biotech companies can act as defensive stocks when market conditions are experiencing unfavourable conditions such as COVID-19. While infectious diseases spread, the demand for products, medical supplies, and consumables increases, and investors expect the company's operating income to increase significantly. It is still being determined whether it will benefit the market performance of the pharmaceutical category when the infectious disease spreads; investors consider the risk of holding shares too high and start selling shares; the share price started significantly lower after the third day. The results of this study are the following (Wang et al., 2013) revealed that the abnormal return hypothesis was responded to or significant around the announcement of the commitment to produce the COVID-19 vaccine. Medical products related to the COVID-19 pandemic, with investors selling their shares significantly.

The WHO's announcement of the COVID-19 pandemic affected the Trading Volume Activity (TVA) of Biotech companies on the NASDAQ stock market.

H3 in this study is: "There is a significant TVA around the event of the announcement of the COVID-19 pandemic by WHO". The influence of the COVID-19 pandemic can be seen in most periods having a significant value of less than 0.05. This shows that the H3 hypothesis can be accepted, so it can be concluded that there was a significant TVA during the announcement of the COVID-19 pandemic and indicated that investors responded to the announcement of the commitment to produce a COVID-19 vaccine. Figure 4. shows investor activity experiencing a significant increase in stock transaction volume due to the announcement of the COVID-19 pandemic by WHO, and this increase was indicated before the announcement. The results showed that the TVA decreased significantly at the time of the announcement, and there was an increase in TVA on the 3rd, fifth, and ninth days. When the WHO announced COVID-19, expectations for medical products increased, and investors expected the company's operating income to increase significantly. Investors need to be clearer about whether the COVID-19 pandemic will benefit the performance of the biotech stock market; therefore, as the infectious disease continues to spread, investors perceive the risk of conducting stock transactions as too high; Stock transaction volume began to fall after the announcement. These results align with research conducted by (Onali, 2020), which examined the impact of news of the deaths of COVID-19 victims in the US on transaction volume on the Dow Jones stock market. The decline in share transaction volume occurred due to decreased share buying and selling activity.

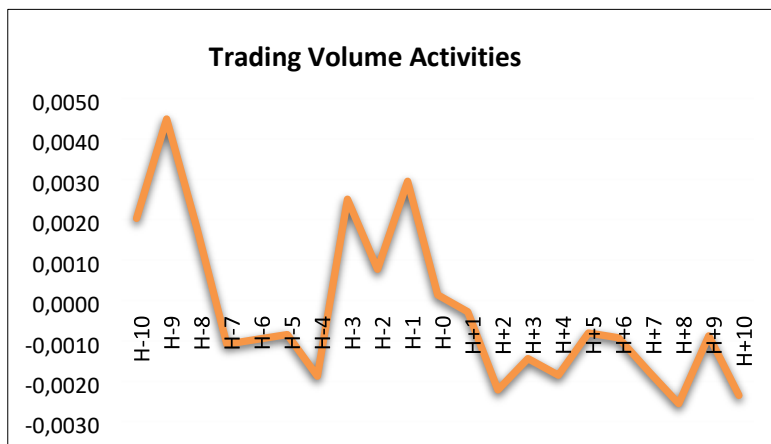


Figure 5. Graph of the Company's Trading Volume Activities Biotech in WHO COVID-19 Pandemic Announcement Period

Source: Processed data (2022)

Hypothesis H3 in this study is: "There are differences in Trading Volume Activities of biotech companies listed on the NASDAQ stock market between before and after the announcement of the COVID-19 pandemic by WHO." The effect of the WHO's announcement of the COVID-19 pandemic can be seen in most periods having a significant value of less than 0.05. The results of the study show that the H3 hypothesis is accepted. It can be said that there are differences in the Trading Volume Activities of biotech companies listed on the NASDAQ stock market before. After the announcement of the COVID-19 pandemic by WHO, H3 can be accepted, shown by the significant differences in TVA before and after the announcement. This was due to the market response to the announcement of the COVID-19 pandemic by WHO. Investors believe biotech companies can provide alternative stocks to obtain returns or profits with predicted profits. However, research results show that the WHO's announcement of the COVID-19 pandemic caused the company's actual return to be lower than expected by investors. The company does not see an expected stock price compared to the stock price before the announcement, so investors are not interested in the biotech company's shares. This could also be due to information on the announcement of the COVID-19 pandemic by WHO, causing investment in biotech companies to be considered less prospective by investors in the future, so investors did not want to invest in the shares of these biotech companies; this was what caused the effect of a decrease in trading activity during the announcement period. COVID-19 pandemic by WHO.

According to research, the impact of the COVID-19 announcement by the WHO lowered the value of market capitalization during the study period (Indrayono, 2021). However, investors prefer to trade with companies whose market influence has solid long-term value in several financial factors. In this study, trading volume aligns with WHO's announcement of the COVID-19 pandemic, which is considered a trend. Significant trading activity when the market is in an uptrend. This means that the announcement of the COVID-19 pandemic by WHO has affected trading volume, which shows biotech stock market investors reacting to the news of the announcement due to consideration of biotech companies being an alternative for stock investment in the temporary period during the pandemic even though biotech companies have publicly stated that they do not plan to get benefit from this COVID 19 pandemic.

The announcement of the commitment to produce a COVID-19 vaccine has affected the Biotech company's TVA on the NASDAQ stock market.

Hypothesis H4 in this study is: "There are differences in Trading Volume Activities of biotech companies listed on the NASDAQ stock market between before and after the announcement of the commitment to produce the COVID-19 vaccine". The effect of the announcement of the commitment to produce the COVID-19 vaccine can be seen in that most periods have a significant value of less than 0.05. This shows that the H4 hypothesis can be accepted, so it can be concluded that there was a significant TVA during the announcement of the commitment to produce the COVID-19 vaccine and indicated that investors responded to the announcement of the commitment to produce the COVID-19 vaccine. Figure 4.4 shows that investor activity experienced a significant increase in stock transaction volume on day one after the announcement of the commitment to produce the COVID-19 vaccine. The results showed that TVA decreased from day 2 to day 10. When the announcement of the commitment to produce a COVID-19 vaccine occurred, expectations for medical products increased, and investors expected the company's operating income to increase significantly. It is unclear whether the COVID-19 pandemic will benefit the performance of the biotech stock market; therefore, as the infectious disease continues to spread, investors perceive the risk of trading in stocks as too high. These results align with research conducted by (Onali, 2020), which examined the impact of news of the deaths of COVID-19 victims in the US on transaction volume on the Dow Jones

stock market. The decline in share transaction volume occurred due to decreased share buying and selling activity.

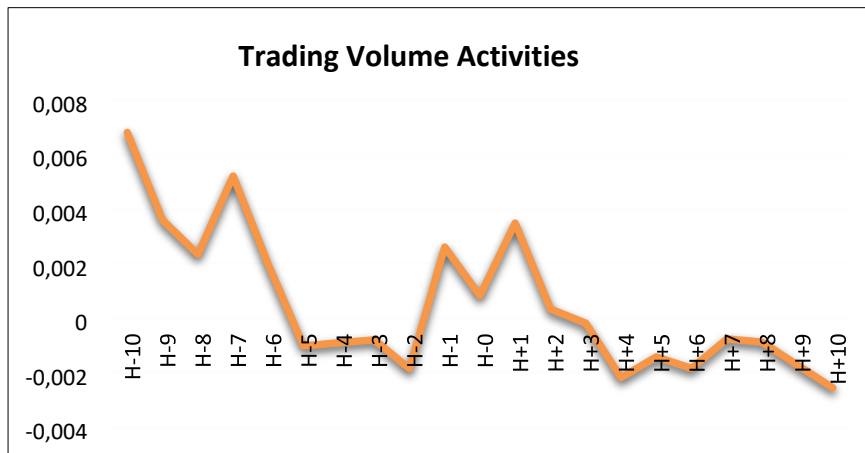


Figure 6. Graph of the Company's Trading Volume Activities Biotech during the Commitment Announcement Period to produce COVID-19 Vaccines

Source: Processed data (2022)

The effect of the WHO's announcement of the COVID-19 pandemic can be seen in that most of the period has a significant value of less than 0.05. The results of the study show that the H4 hypothesis is accepted, and it can be said that there is a significant TVA between before and after the announcement; this is because the market responds to the announcement of the COVID-19 vaccine commitment, investors do not trust biotech companies that can provide returns or profits with predictable profits. Obtained in the future. This is also because the actual return given by the company is like what investors expect. The company sees no expected stock price compared to the stock price before the announcement. Hence, investors are not interested in the biotech company's shares; this can also be caused because the prospects for biotech companies during the COVID-19 pandemic are not convincing, so investors do not want to invest in biotech company stocks. This causes the effect of trading volume activity before and after the announcement that there is a TVA to decrease significantly.

According to research, the impact of the COVID-19 announcement by the WHO lowered the value of market capitalization during the study period (Indrayono, 2021). However, investors prefer to trade with companies whose market influence has solid long-term value in several financial factors. This study indicates that some investors respond to announcements, and there are several considerations for investing in biotech companies as an alternative to stock investment. Trading activity will increase when the market is in an uptrend, and trading activity will decrease when the market is in a downtrend. This means that trading volume can be used to predict the trend at that time. Trading activity can measure the enthusiasm of buyers and sellers in the biotech stock market. During an uptrend market, a trading volume that does not increase can be caused by an increase in sellers not in line with the enthusiasm of buyers.

The announcement of the COVID 19 pandemic by WHO affected the liquidity of Biotech company shares on the NASDAQ stock market.

H5 in this study is: "There are differences in the Liquidity of the Shares of biotech companies listed on the NASDAQ stock market between before and after the announcement of the COVID-19 pandemic by WHO." The effect of the announcement of the COVID-19 pandemic by WHO can be seen in that most of the period had a significant value or is less than 0.05. This shows that the H5 hypothesis can be accepted, so it can be concluded that there was significant stock liquidity during

the announcement of the commitment to produce the COVID-19 vaccine. Figure 4.5 shows the lowest stock liquidity owned by Oragenics, Inc. (OGEN), while Johnson & Johnson (JNJ) has the highest liquidity.

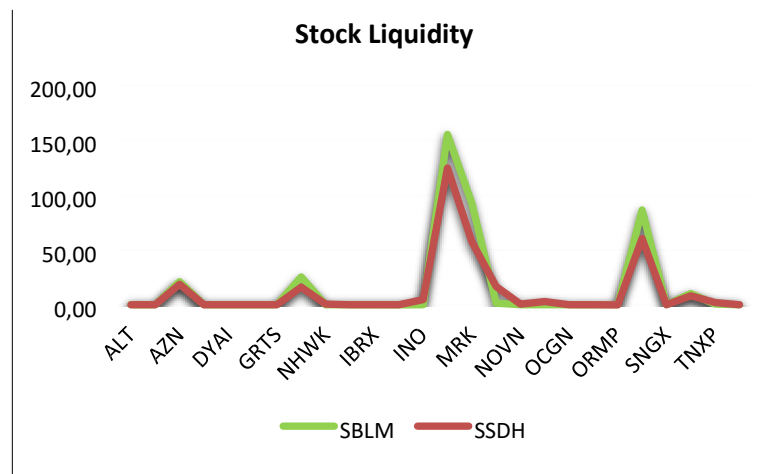


Figure 7. Graph of Liquidity of Biotech Companies during the Announcement Period of the COVID 19 Pandemic by WHO

Source: Processed data (2022)

The research results related to the effect of the announcement of the COVID-19 pandemic by WHO on stock liquidity are in line with those carried out by (Chebbi et al., 2021) and (Ingale & Paluri, 2022). The stock markets studied were the S&P 500 and the MENA stock markets; the results indicated that the announcement significantly impacted the stock market. The study covers stock markets in the S&P 500 representing stocks traded on the New York and NASDAQ stock markets and 314 listed companies operating in six Middle East and North Africa (MENA) countries. It is not specific to stock markets operating in the biotechnology sector. This study shows that the WHO's announcement of the COVID-19 pandemic has no effect on the biotech stock market, as indicated by the liquidity value. The biotech stock market seems to be giving signals to investors, stating that the company has the same liquidity value both before and after the announcement, so it can be said that the information regarding the announcement of the COVID-19 pandemic by WHO, which was reported had no effect on the liquidity of the biotech stock market on the stock market. NASDAQ. **The announcement of the commitment to produce the COVID-19 vaccine affected the liquidity of the Biotech company's shares on the NASDAQ stock market.**

H6 in this study, "There is a difference in the liquidity of shares of biotech companies listed on the NASDAQ stock market between before and after the announcement of the commitment to produce the COVID-19 vaccine. " The effect of the announcement of the commitment to produce the COVID-19 vaccine can be seen in that most periods have a significant value of less than 0.05. This shows that the H6 hypothesis can be accepted, so it can be concluded that there was significant stock liquidity during the announcement of the commitment to produce the COVID-19 vaccine. Figure 8 shows the lowest stock liquidity owned by Oragenics, Inc. (OGEN), while Johnson & Johnson (JNJ) has the highest liquidity.

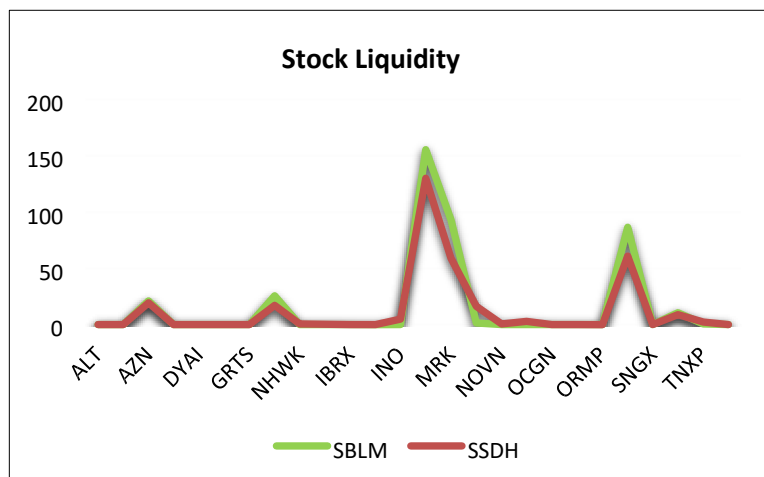


Figure 8. Graph of Biotech Company Liquidity at Announcement Period for COVID 19 Vaccine Production Commitment

Source: Processed data (2022)

The results of research related to the effect of the announcement of the COVID-19 pandemic by the WHO on stock liquidity were carried out by (Chebbi et al., 2021) and (Ingale & Paluri, 2022). The stock markets studied were the S&P 500 stock market and the MENA stock market, and the results showed that the stock market was significantly negatively affected by the announcement. The study covers stock markets in the S&P 500 representing stocks traded on the New York and NASDAQ stock markets and 314 listed companies operating in six Middle East and North Africa (MENA) countries. It is not specific to stock markets operating in the biotechnology sector. The results of this study indicate that research specifically on the stock market engaged in the biotechnology sector was not negatively affected during the pandemic period, possibly due to information related to the announcement of a commitment to producing a COVID-19 vaccine.

The results also showed a difference in the average liquidity of biotech company stocks on the NASDAQ stock market before and after the announcement, indicating that these results are the same as previous studies. Has been conducted by (Vaverková et al., 2020) on US stock market liquidity (S&P500) with a short period (30 days) of information on total confirmed cases and deaths in twelve countries and market movements. This study, based on a longer time series, verified the robustness of this finding.

The WHO's announcement of the COVID-19 pandemic affected the volatility of Biotech company shares on the NASDAQ stock market.

Volatility Pattern Analysis

H7 in this study is: "There is a difference in the volatility of the stock volatility of biotech companies listed on the NASDAQ stock market between before and after the announcement of the COVID-19 pandemic by WHO." The effect of the announcement of the COVID-19 pandemic can be seen in that most periods have a significant value of less than 0.05. This shows that the H7 hypothesis can be accepted, so it can be concluded that there was significant stock volatility during the announcement of the COVID-19 pandemic WHO. Figure 4.7 shows the volatility of stocks before and after the announcement of the COVID-19 pandemic WHO.

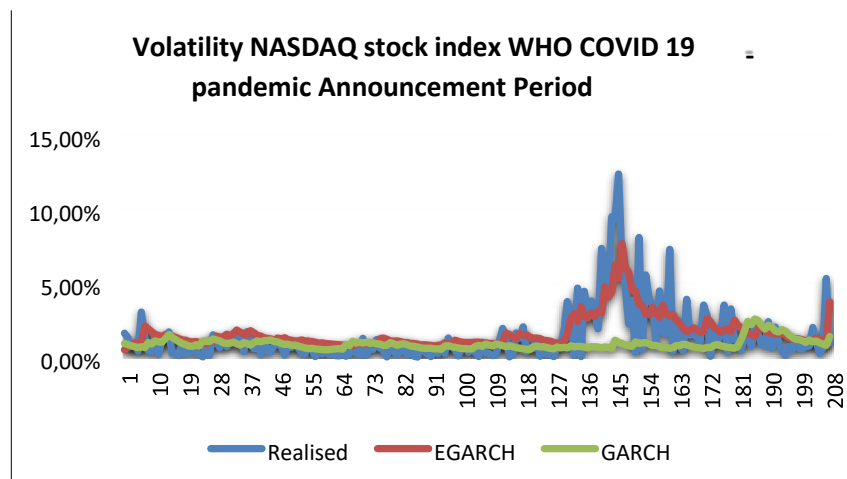


Figure 8. Graph of Return Volatility during the Announcement Period of the COVID 19 Pandemic by WHO

Source: Processed data (2022)

The results of the study show that volatility after it is higher than before the announcement of the COVID-19 pandemic by WHO. The study results show that the announcement of the COVID-19 pandemic influences changes in the market price of biotech stocks on the NASDAQ. This can be caused by market prices that tend to be higher than the price of the shares previously offered so that price fluctuations occur on the stock exchange.

Good news causes less volatility when compared to bad news. This pattern of response doubled during the COVID-19 pandemic. When the health crisis is considered a bad event, market players wait for good news about the response to the health crisis by biotech companies to minimize volatility in the stock market. This study's results align with research that has been conducted (Onali, 2020).

The announcement of the commitment to produce the COVID-19 vaccine affected the volatility of the Biotech company's shares on the NASDAQ stock market.

Volatility Pattern Analysis

The coefficient λ is negative except for the moment after the announcement of the commitment to produce a COVID-19 vaccine with a significance level of 10%, indicating that the good news indicated by the announcement of the commitment to produce a COVID-19 vaccine causes less volatility when compared to bad news. This response pattern doubled during a crisis but did not apply to biotech company stocks. This means that when a crisis occurs, market players are waiting for good news about the announcement of the COVID-19 vaccine as an effort to overcome the health crisis by biotech companies to minimize volatility in the stock market.

The coefficient β on the index is not high, indicating that the volatility in the biotech stock market does not last long. This condition is not much different in the period before the announcement and at the time of the announcement. When the announcement period took place in biotech stocks, it showed a persistence that was slightly below the NASDAQ index stocks. This means that the volatility of stock returns for biotech companies will stabilize more quickly than stocks on the NASDAQ index. This is very likely related to the composition of biotech stocks which are companies in the health sector. During a pandemic, biotech stocks were considered to have the most up-to-date information regarding policies to respond to health crises such as vaccine production.

A high coefficient α in the biotech stock market represents the magnitude of the symmetric effect of a shock. The coefficient α did not increase during the announcement period for vaccine

production commitments. This illustrates that the biotech stock market is classified as insensitive and does not become more sensitive during a recession or crisis. Nevertheless, from a comparison of the parameters of the symmetric effect of the shock, biotech stocks are consistently more careful in responding to a shock, both in the period before and during the announcement. In addition, according to the relative scale between the coefficients, an asymmetric effect of a shock on the market or a leverage effect occurs in the biotech stock market.

In addition, according to the relative scale between the coefficients, an asymmetric effect of a shock on the market or a leverage effect did not occur in the biotech stock market during the COVID-19 vaccine announcement period. It is said that there is no leverage effect because the return volatility is not significant, and there is no price reduction.

The H8 in this study is: "There is a difference in the volatility of the shares of biotech companies listed on the NASDAQ stock market between before and after the announcement of the commitment to produce the COVID-19 vaccine." The effect of the announcement of the commitment to produce the COVID-19 vaccine can be seen in that most periods have a significant value of less than 0.05. This shows that the H8 hypothesis can be accepted, so it can be concluded that there was significant stock volatility during the announcement of the commitment to produce the COVID-19 vaccine. Figure 9 shows the volatility of stocks before and after the announcement of the COVID-19 pandemic WHO.

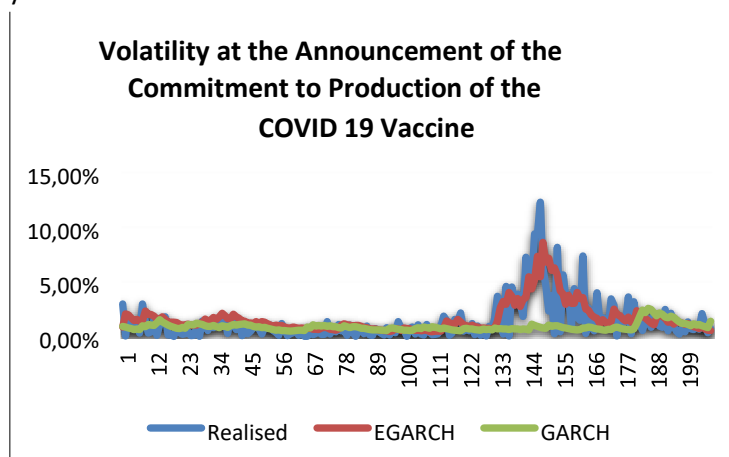


Figure 9 . Graph of Return Volatility in Announcement Period of Commitment to Production of COVID-19 Vaccines

Source: Processed data (2022)

The results show that the volatility after it is higher than before the announcement of the commitment to produce the COVID-19 vaccine. Good news causes less volatility when compared to bad news.

When the COVID-19 pandemic occurs, the good news about the announcement of a commitment to producing a COVID-19 vaccine as an effort to overcome the health crisis by biotech companies can affect volatility in the stock market. This study supports prospect theory. Based on the theory that people are more afraid of failure than benefiting, if investors are given two choices, they will choose the minimum loss opportunity even though the other alternative is for the opportunity to make more profit. Likewise, during a pandemic, investors will participate in stocks that show a lower level of volatility due to good news information in the form of a commitment to producing a COVID-19 vaccine.

Research on the impact of COVID-19 on the stock market has focused heavily on identifying the spread and impact of the disease. Abnormal fluctuations in stock returns — factors that reflect investor behaviour directly to economic changes.

The behavioural theory explains phenomena related to market trust, one of the factors that cause stock price volatility or even the risk of transmitting information related to an epidemic, which then causes a financial crisis. Matters such as the WHO's announcement of the COVID-19 pandemic and the announcement of the commitment to produce a COVID-19 vaccine have caused increased attention to profit predictions that should influence stock prices. Moreover, in theory, signals can give good or bad signals to investors. In this study, it is in line that the announcement of the COVID19 pandemic by WHO during the crisis period affected volatility returns and at the time of the announcement of the commitment to produce the COVID-19 vaccine. This shows that the announcement of the commitment to produce the COVID-19 vaccine is considered good news information that is of concern to investors so that volatility return reflects stock fluctuations in the period in question because it gives a signal to investors.

CONCLUSION

Based on the research conducted on biotech companies listed on NASDAQ, the COVID-19 pandemic announcement and commitment to produce a vaccine did not significantly affect abnormal stock returns. However, there was a notable impact on Trading Volume Activities, reflecting increased trading, liquidity, and volatility. These findings align with the semi-strong form of the Efficient Market Hypothesis, suggesting that the market efficiently incorporated available information regarding the pandemic and vaccine efforts.

Further research is needed to explore the long-term implications of the pandemic on the biotech industry and overall financial markets. Understanding how markets respond to significant events and absorb new information can provide valuable insights for policymakers, investors, and researchers in navigating future crises and making informed decisions.

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CAPITAL MARKET REACTIONS TO THE COVID 19 PANDEMIC IN BIOTECH COMPANIES LISTED ON NASDAQ

INTERNATIONAL SEMINAR

WORO UMayI ANANDA

JULY 2023



01

INTRODUCTION

Background, Identification, Limitations, Formulation, Purpose, Novelty

02

THEORIES, PRELIMINARY RESEARCH, COGNITIVE FRAMEWORKS AND HYPOTHESES

03

RESEARCH METHODS

04

RESULTS, DISCUSSION AND NOVELTY OF RESEARCH

05

CONCLUSION, IMPLICATIONS AND SUGGESTIONS

BACKGROUND



Financial crisis in the stock market (Patel and Sarkar, 1998 in Indrayono, 2021).

**World stock markets fell
31/12/19 – 30/04/20; rebound
03/24/20**



**Announcement of the C19 Pandemic by
WHO 11 Mar 2020**

**Negatively significant impact
on the world economy
(Fig. 1)**

**Consequences of pandemic
events - increased panic and
market slump**

BACKGROUND (cont.)



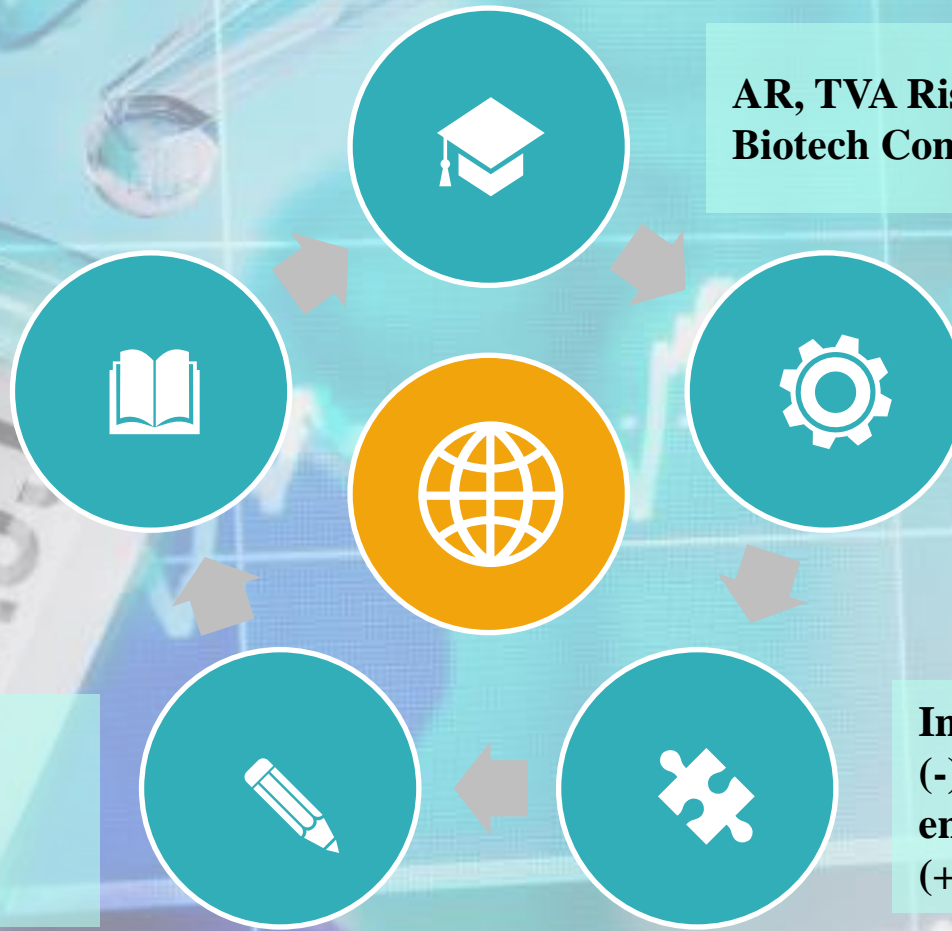
Market reaction: AR, increased TVA, and increased volatility towards vaccine production commitment announcements > little research. NASDAQ (?)

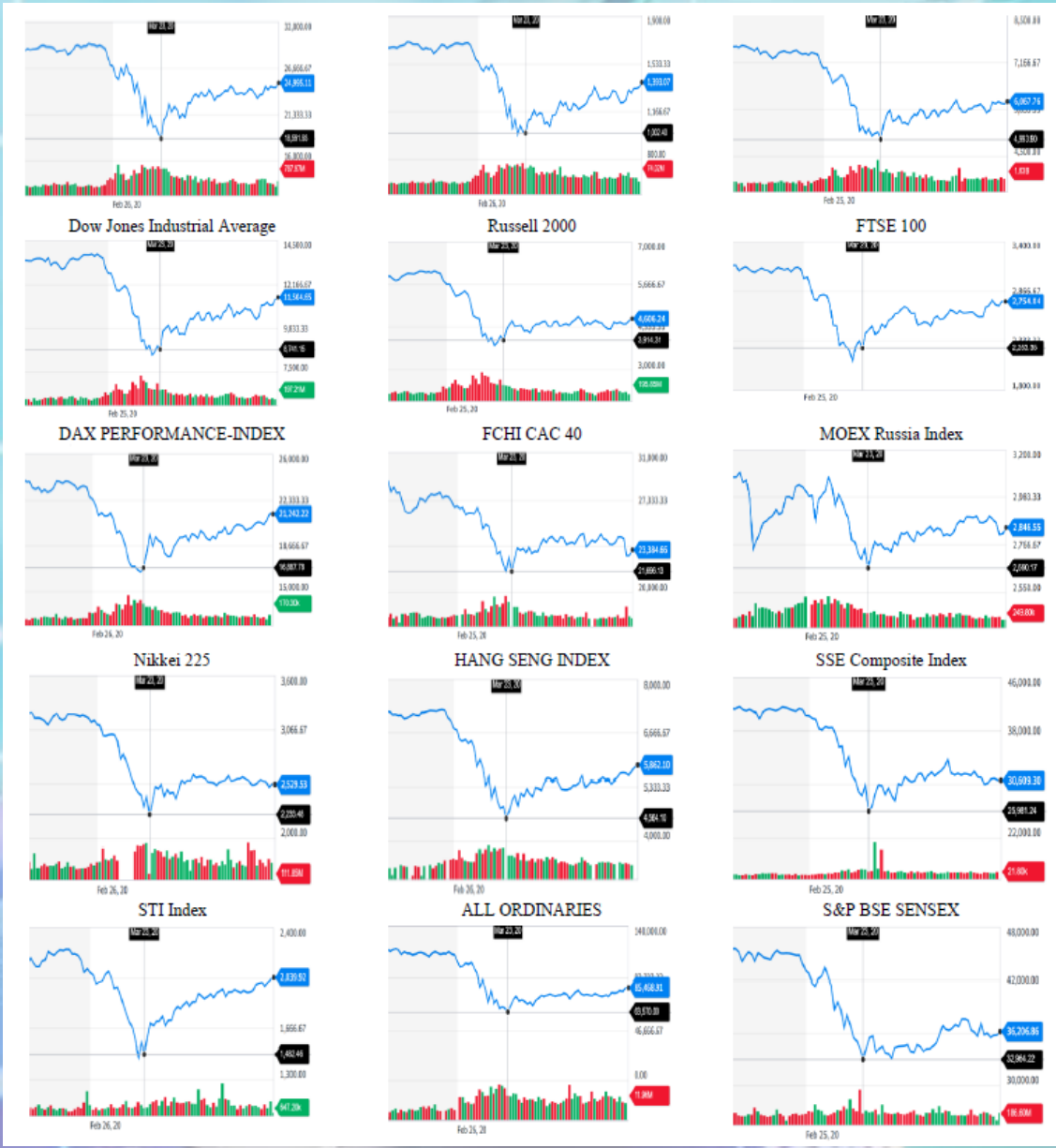
WHO and the world's commitment to R&D investment in vaccine production – 19 Mar 20

AR, TVA Rise, and Volatility Increase Biotech Company (?)

Several biotech companies profited from the C19 outbreak (Fig. 2)

**Impact on business sector
(-) transportation, mining, environment
(+) IT, Education, pharmacy**





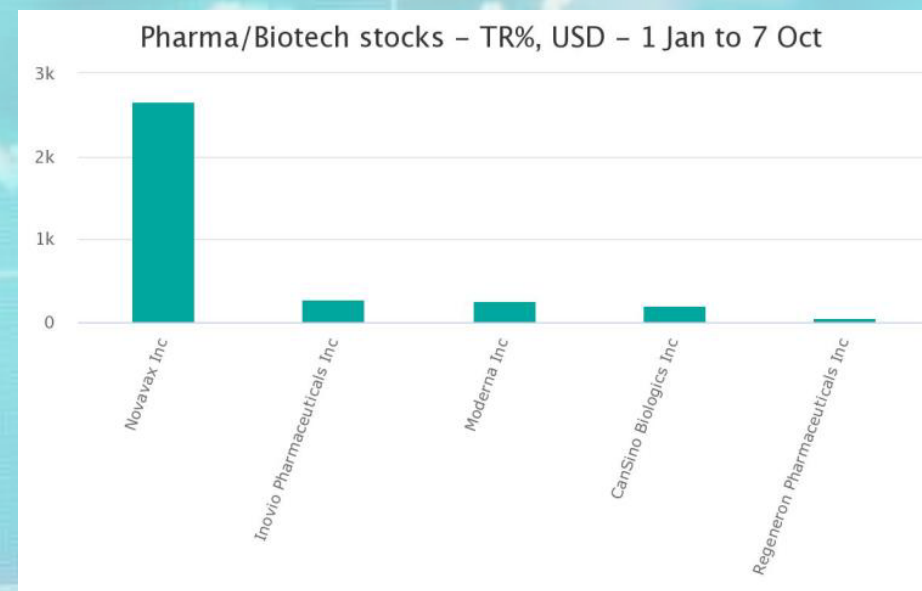
Stock Indices in Several Countries During the Financial Crisis (Indrayono, 2021)

Tabel 1. 1. Nilai Pasar Saham Perusahaan Farmasi/Bioteknologi

No.	Pasar Saham Farmasi & Biotek	TR%, USD
1.	Novavax Inc	2663.8%
2.	Inovio Pharmaceuticals Inc	281.2%
3.	Moderna Inc	270.0%
4.	CanSino Biologics Inc	198.4%
5.	Regeneron Pharmaceuticals Inc	57.6%
6.	Eli Lilly and Co	15.0%
7.	AstraZeneca PLC	8.3%
8.	Johnson & Johnson	3.4%
9.	Gilead Sciences Inc	-0.4%
10.	Pfizer Inc	-4.1%
11.	GlaxoSmithKline PLC	-20.0%

Sumber: Eikon, 2020

Keterangan: TR%: Total Revenue



Source: Eikon, 2020

TR%: Total Revenue

Stock Market of Pharmaceutical/Biotech Companies for the period 1 January - 7 October 2020

RESEARCH OBJECTIVES



Proving whether the announcement of the C19 pandemic by WHO has an effect on the liquidity of biotech company shares on the NASDAQ.

Proving whether the announcement of the C19 vaccine commitment has an effect on the liquidity of biotech company shares on the NASDAQ.

Proving whether the announcement of the C19 pandemic by the WHO has an effect on the volatility of biotech company stocks on the NASDAQ.

Proving whether the announcement of the C19 vaccine commitment has an effect on the volatility of biotech company stocks on the NASDAQ.

Proving whether the announcement of the C19 pandemic by the WHO has an effect on the AR shares of biotech companies on the NASDAQ.

Proving whether the announcement of the C19 vaccine commitment has an effect on the AR of biotech company shares on the NASDAQ.

Proving whether the announcement of the C19 pandemic by the WHO has an effect on TVA shares of biotech companies on the NASDAQ.

Proving whether the announcement of the C19 vaccine commitment has an effect on TVA shares of biotech companies on the NASDAQ.

RESEARCH UTILITY



SCIENCE

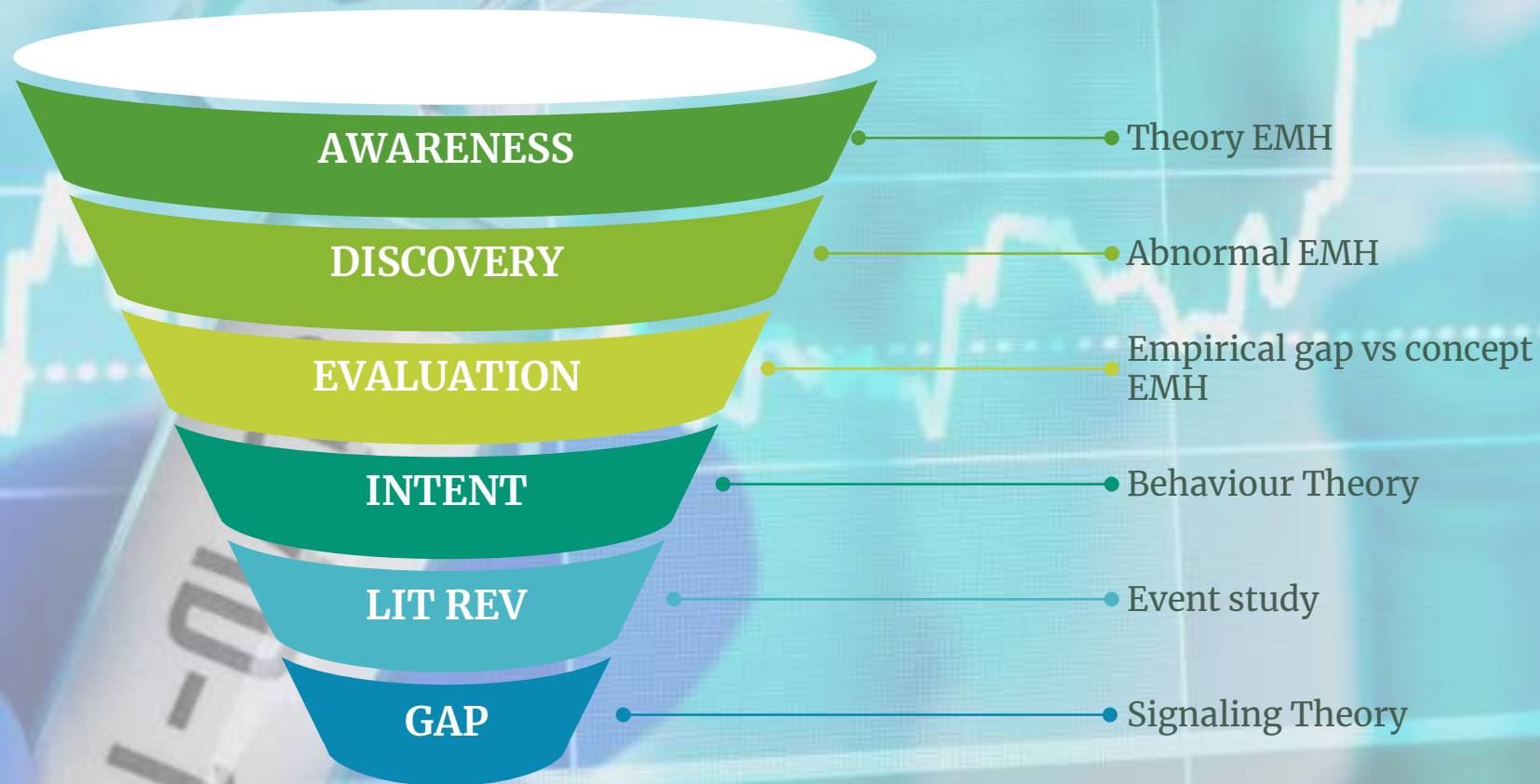
further insights and insights to academics on the influence of health events such as the COVID19 pandemic outbreak on stock price movements. In theory, this research has an effect on proving the theory of event studies that are directly related to investment in the stock market, especially the stock market in the pharmaceutical and biotechnology industry sectors globally

INVESTOR

Provide an overview in investment decision making during the period before and after a health event such as the C19 pandemic outbreak that can be predicted before, so that for the future investors are expected to be more sensitive to responding to health problems

RESEARCHERS

Examining the same study in the capital market, it is hoped that this research can be used as a foothold for further research with different sectors such as agricultural biotech companies





Signaling Theory

A behavior of **company management** in providing investors with views on the company's **future prospects** (Michael Spence, 1973).

Signaling theory suggests that **asymmetric information** problems that occur between firms and investors lead to adverse selection **risks for investors**. To avoid this situation, companies can give positive signals to the market by voluntarily publishing their information (Watts & Zimmerman, 1986).

According to this theory, the larger the company, the greater the problem of asymmetric information. In addition, businesses with higher profitability will **tend to publish** more information about growth prospects to give **positive signals** to investors, thus having a positive impact on stock prices (Inchausti, 1997).



Behavior Finance Theory

The fusion of psychology with finance, was formed and developed in 1980 by a French psychologist, Gabriel Tarde - the application of psychology to economic science. Tversky and Kahneman's (1981) and Shiller's (2015) subsequent study with the book "Irrational Exuberance" accurately predicted the collapse of global stock markets, creating a great turning point for behavioral financial research. This theory can explain phenomena related to market confidence, one of the factors that cause volatility in stock prices or even the risk of information transmission related to outbreaks, which subsequently lead to financial crises.

It can be argued that research on the impact of COVID19 on the stock market focuses heavily on identifying the spread and impact of the disease. **Abnormal fluctuations in stock returns — factors that directly reflect investor behavior toward economic changes.**

The market has a positive reaction to "bad" events because investors are psychologically prepared, and they believe that C19 preventive measures such as vaccine and drug procurement can solve this problem (Dang et al., 2021)



Efficient market Theory

Stock prices are unpredictable and therefore stock returns will also be random and mostly follow normal distributions. The market is divided into three levels of efficiency: (i) Efficiency of the weak form - states that the current stock price reflects complete information about past prices (ii) Efficiency of the semi-strong form - the current stock price is fully reflected by published information as well as information about the company, such as profits, dividends and management notices and (iii) Strong form efficiency - all information in the market is reflected in the share price (Fama, 1970).

Based on a theoretical framework derived from efficient market theory, **security prices always fully reflect all available information** and whenever there is systematic economic news. From this study it can be predicted that there is a strong relationship between the C19 pandemic and the return of stock market index yields.



EVENT STUDY

Is a statistical method for assessing the impact of an event on the value of an enterprise. The basic idea is to find abnormal returns caused by the event being studied by adjusting for returns derived from overall market price fluctuations. This event study was discovered by Ball and Brown (1968).

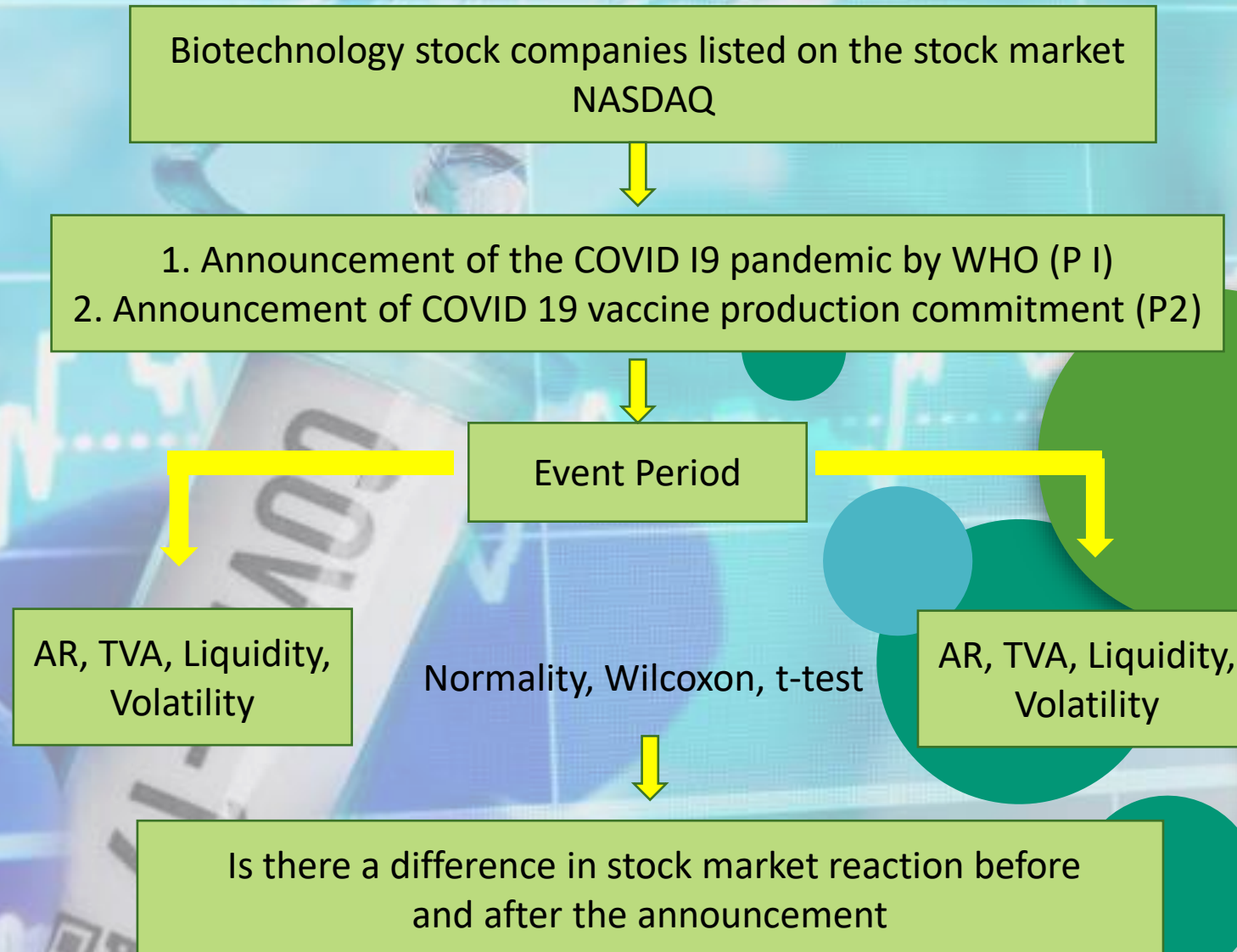
Previous research examines market reaction to the announcement of several important events; The Event Study method is used to look at the **information content** of the event, and to test whether the market is in **semi-robust form efficiency**.

PRELIMINARY RESEARCH



Alam <i>et al</i> (2020)	ARCH: AR, AAR, CAR, CAAR	31 Bombay Stock Exchange (BSE). EW 35 hari, 20 hari sebelum dan 15 hari setelah <i>lockdown</i>
HaiYue, L. <i>et al.</i> 2020	T-test; ARCH: AR, CAR	Return CAR jangka pendek di pasar saham Tiongkok dan Asia dalam 10 periode <i>event</i> setelah pengumuman epidemi
Kanthavit (2020)	ARCH: AR, AAR	Reaksi pasar saham pada peristiwa pertama deteksi C19 dan terakhir di Tiongkok
Dutta, A <i>et al</i> (2020)	ARCH: AR	Efek 3 peristiwa terkait C19 pada <i>return</i> saham minyak mentah dan ETF energi

RESEARCH FRAMEWORK





01

H0: There is no abnormal difference in stock returns of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 pandemic by WHO.

H1: There is an abnormal difference in stock returns of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 pandemic by WHO.

02

H0: There is no abnormal difference in stock returns of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 vaccine production commitment.

H2: There is an abnormal difference in stock returns of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 vaccine production commitment.

03

H0: There is no difference in Trading Volume Activities of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 pandemic by WHO.

H3: There is a difference in Trading Volume Activities of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 pandemic by WHO.

04

H0: There is no difference in Trading Volume Activities of biotech companies listed on the NASDAQ stock market between before and after the announcement of production commitments.

H4: There is a difference in Trading Volume Activities of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 vaccine production commitment.



05

H0: There is no difference in Stock Liquidity of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 pandemic by WHO.

H5: There is a difference in Stock Liquidity of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 pandemic by WHO.

06

H0: There is no difference in Stock Liquidity of biotech companies listed on the NASDAQ stock market between before and after the announcement of production commitments.

H6: There is a difference in Stock Liquidity of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 vaccine production commitment

07

H0: There is no difference in Stock Volatility of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 pandemic by WHO.

H7: There is a difference in Stock Volatility of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 pandemic by WHO.

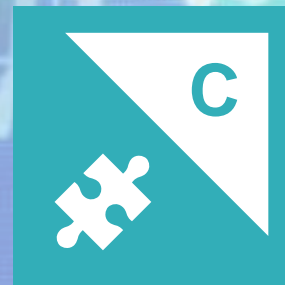
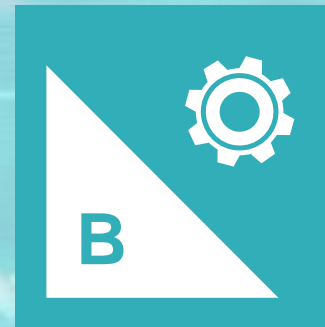
08

H0: There is no difference in Stock Volatility of biotech companies listed on the NASDAQ stock market between before and after the announcement of production commitments.

H8: There is a difference in Stock Volatility of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 vaccine production commitment.



**Quantitative methods,
*event study***



**Descriptive statistics,
Normality test, T-test
difference test**

**833 Biotechnology stock
companies**

**[https://www.biopharmcatalyst.com/
biotech-stocks/company-pipeline-
database](https://www.biopharmcatalyst.com/biotech-stocks/company-pipeline-database)**

Variables:

**AR, TVA, Liquidity, Stock
Volatility**

SAMPLING METHOD



No.	Sample Criteria	Sum
1.	Pharmaceutical and biotechnology companies on the NASDAQ stock market contained in the database: https://www.biopharmcatalyst.com/biotech-stocks/companypipeline-database	833
2.	Companies that do not fall into the category of clinical trial companies FDA-approved vaccines Companies that fall into the category of vaccine clinical trial companies and approved by FDA	(634) 199
3.	The company is not in the category of clinical trials of the C19 vaccine Companies in the C19 vaccine clinical trial category	(145) 54
4.	Companies whose data were incomplete in the study period Companies that have complete data in the study period and meets categories no. 1-3	(28) 26



01

Abnormal Return (AR)



$$AR_{i,t} = R_{i,t} - E(R_{i,t})$$

$AR_{i,t}$ = abnormal return of stock i on day t

$R_{i,t}$ = Actual Return for Stock i on Day T

$E(R_{i,t})$ = expected return for stock i on day t

$$R_{i,t} = (P_{i,t} - P_{i,t-1}) / P_{i,t-1}$$

$P_{i,t}$ = Share price i on t day

$P_{i,t-1}$ = Share price i on day $t-1$

$$E(R_{i,t}) = \alpha_i + \beta_i * R_{mt}$$

R_{mt} = return market on day t

$$R_{mt} = (P_{mt} - P_{mt-1}) / P_{mt-1}$$

P_{mt} = indeks NASDAQ on day t

P_{mt-1} = indeks NASDAQ on day $T-1$



02

Trading Volume Activity
(TVA)

$$TVA_{i,t} = \frac{\sum \text{Stocks traded at time } t}{\sum \text{listed on the Stock Exchange at the time } t}$$

TVA_{it} = Trading Volume Activity of Company I at Time T

$$\text{Stock Liquidity} = \frac{\sum \text{volume transaction periode } t}{\text{Total volume of shares}}$$



04

Stock Volatility



$$\ln(h_t) = \alpha_0 + \alpha_1 \left(\frac{\varepsilon_{t-1}}{h_{t-1}^{0.5}} \right) + \lambda_1 \left| \frac{\varepsilon_{t-1}}{h_{t-1}^{0.5}} \right| + \beta_1 \ln(h_{t-1}) \quad [1]$$

$$\ln(h_t) = \alpha_0 + \beta \ln(h_{t-1}) + \alpha_1 z_{t-1} + \gamma(|z_{t-1}|) - E(|z_{t-1}|) \quad [2]$$

Where $z_t = \varepsilon^t / \sigma_t$. *News Impact Curves* adalah:

$$h_t = \begin{cases} A \exp \left[\frac{\alpha_1 + \gamma}{\sqrt{h_t}} \right] & \text{for } \varepsilon_{t-1} > 0 \\ A \exp \left[\frac{\alpha_1 - \gamma}{\sqrt{h_t}} \right] & \text{for } \varepsilon_{t-1} < 0 \end{cases} \quad [3]$$

$$A \equiv h_t^\beta \exp[\alpha_0 - \gamma \sqrt{2/\pi}] \quad [4]$$

$$\alpha_1 < 0 \quad \alpha_1 + \gamma > 0 \quad [5]$$



Hypothesis	(p-value)
H1: There is an abnormal difference in stock returns of biotechnology companies listed on the NASDAQ stock market before and after the announcement of the COVID 19 pandemic by WHO (P1).	0.179 > 0.05
H2: There is an abnormal difference in stock returns of biotechnology companies listed on the NASDAQ stock market before and after the announcement of COVID 19 (P2) vaccine production commitments.	0.182 > 0.05
AAR P1 VS AAR P2	0.953 > 0.05





The announcement of the C19 pandemic by WHO affected the abnormal return (AR) of Biotech companies on the NASDAQ stock market

- ✓ *Investors have a positive view of biotechnology companies and the overall market related to the C19 pandemic*
- ✓ *Investors predict higher returns compared to expected returns due to the potential development of new products and technologies to overcome the C19 pandemic*
- ✓ *The health crisis could change investor judgments and explain the existence of AR during the C19 pandemic period*
- ✓ *Semi-strong efficient markets assume that stock prices reflect all publicly available information, but do not reflect internal company information or confidential information that is not available to the public – markets are efficient*

confidence level 95%
P-value < 0,05 – Significant

H0 accepted
H1 rejected

AR after > AR before



The announcement of the C19 vaccine production commitment affects the abnormal return (AR) of Biotech companies on the NASDAQ stock market

- ✓ *The results of the study are not significant, showing the stock market is entirely efficient.*
- ✓ *No delays in incorporating relevant information into stock prices.*
- ✓ *The expected return suggests that all publicly available information is reflected in stock prices – align with the EMH concept*

confidence level 95%
P-value < 0,05 – Significant

H0 accepted
H1 rejected

AR after > AR before



AAR P1 VS AAR P2

- ✓ *The results of further tests showed no difference in the impact of AR values between the two events*
- ✓ *The announcement of vaccine production commitments is considered more impactful than the COVID 19 announcement*
- ✓ *The greater impact shows that the announcement of vaccine production commitments has a greater influence on stock price movements compared to the announcement of the COVID 19 pandemic.*
- ✓ *No difference in AAR between the two announcements indicates a certainty in market efficiency according to EMH theory and the stock market is supposed to be efficient in absorbing new information, however, in reality, the market is not always completely efficient at all times and situations.*

confidence level 95%

P-value > 0.05 – Not significant

AAR P2 > AAR P1



Hypothesis	(p-value)	Remarks
H3: There is a difference in Trading Volume Activities of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 pandemic by WHO (P1).	$0.0000 < 0.05$	↑ 0.8783*
H4: There is a difference in Trading Volume Activities of biotech companies listed on the NASDAQ stock market between before and after the announcement of the C19 (P2) vaccine production commitment.	$0.0000 < 0.05$	↑ 0.8995*
TVA P1 VS P2	$0.599 > 0.05$	





The announcement of the C19 pandemic by WHO affects the TVA of Biotech companies on the NASDAQ stock market

- ✓ *The increase in TVA following the announcement of the COVID 19 pandemic could indicate the market may be inefficient in responding to new information and adjusting stock prices quickly and accurately.*
- ✓ *This is inconsistent with the EMH theory which states that markets reflect all publicly available information.*
- ✓ *Previous research reported the impact of the pandemic on the stock market, some reported an increase in trading volume and others reported a decline. Zhang et al. (2020), Rouatbi et al. (2021), and Indrayono (2021)*

confidence level 95%
P-value < 0.05 – Significant

H0 rejected
H1 accepted

TVA after > TVA before



The announcement of the C19 vaccine production commitment affects the TVA of Biotech companies on the NASDAQ stock market

- ✓ *A significant TVA (Trading Volume Activity) indicates high trading activity and great interest from market participants.*
- ✓ *In the context of Market Efficiency (EMH) theory, a significant TVA may indicate a lack of market efficiency.*
- ✓ *This suggests that the stock price may not yet fully reflect the information quickly and efficiently, indicating an opportunity to make additional profits in trading.*
- ✓ *Previous studies have shown the significant impact of pandemics and vaccine announcements on stock prices and trading volumes across various industries. Ba et al (2021) and Chen et al (2021)*

confidence level 95%
P-value < 0.05 – Significant

H0 rejected
H1 accepted

TVA after > TVA before



TVA P1 VS TVA P2

- √ *Further tests were conducted to see the difference in the reaction of biotechnology companies to the announcement of the C19 pandemic and the announcement of the commitment to produce C19 vaccines based on TVA.*
- √ *The results of further trials showed that there was no difference in reaction from the TVA value of biotech companies between the announcement of the C19 pandemic and the commitment to C19 vaccine production, so it can be concluded that there was no difference in reactions to the TVA of biotech companies in the two events.*

confidence level 95%

P-value > 0.05 – not significant

TVA P1 = TVA P2



Hypothesis	(p-value)	Remarks
H5: There is a difference in the liquidity of shares of biotechnology companies listed on the NASDAQ stock market between before and after the announcement of the COVID 19 pandemic by WHO (P1).	$0.003 < 0.05$	↑ 0.0035*
H6: There is a difference in the liquidity of shares of biotechnology companies listed on the NASDAQ stock market between before and after the announcement of the COVID 19 (P2) vaccine production commitment.	$0.008 < 0.05$	↑ 0.0037*
Liquidity P1 VS P2	$0.473 > 0.05$	





The announcement of the C19 pandemic by WHO affects the liquidity of Biotech companies on the NASDAQ stock market

- ✓ *The results of the study support the EMH theory which states that the stock market is efficient in using new information so that information can be reflected quickly in stock prices*
- ✓ *Stock liquidity affects stock prices and is an important factor in the stock market*
- ✓ *Increased liquidity indicates an increase in investor interest in biotechnology companies that can have a positive effect on the company's stock price and financial prospects.*

confidence level 95%
P-value < 0.05 – Significant

H0 rejected
H1 accepted

Liquidity after > Liquidity before



The announcement of the C19 vaccine production commitment affects the liquidity of Biotech companies on the NASDAQ stock market

- ✓ *The results of this study are consistent with efficient market theory which states that all relevant information is reflected in stock prices and absorbed quickly and efficiently into the market.*
- ✓ *The significant increase in stock liquidity following the announcement of vaccine production commitments shows that the market can absorb new information quickly and efficiently into stock prices, resulting in increased liquidity.*
- ✓ *Previous research has shown the significant impact of events such as the C19 pandemic and vaccine announcements on stock prices and liquidity.*
- ✓ *In conclusion, this study provides evidence that the announcement of vaccine production commitments has a significant impact on the liquidity of biotechnology companies stock on the NASDAQ and is consistent with the efficient market hypothesis and previous research.*

confidence level 95%
P-value < 0.05 – Significant

H0 rejected
H1 accepted

Liquidity after > Liquidity before



Liquidity P1 VS Liquidity P2

- ✓ *Test results show that there is no difference in liquidity impact between the two announcements*
- ✓ *There is not enough evidence to support the conclusion that the WHO's announcement of a C19 pandemic has a greater liquidity impact than the announcement of C19 vaccine production commitments, or vice versa*
- ✓ *Both announcements have a significant impact on liquidity and the liquidity value is the same, hence the market is equal in absorbing new information quickly and efficiently into the stock price, but there is no difference in liquidity impact between the two events.*
- ✓ *Test results can help investors understand how the market reacts to certain news and events and provide useful information for investors in making investment decisions.*

confidence level 95%

P-value > 0,05 – Not Significant

Liquidity P1 = Liquidity P2



Hypothesis	(p-value)	Remarks
H7: There is a difference in Stock Volatility of biotechnology companies listed on the NASDAQ stock market between before and after the announcement of the COVID 19 pandemic by WHO (P1).	$0.000 < 0.05$	↑ 0.0005*
H8: There is a difference in Stock Volatility of biotechnology companies listed on the NASDAQ stock market between before and after the announcement of COVID 19 (P2) vaccine production commitments.	$0.000 < 0.05$	↑ 0.0030*
Volatility P1 VS P2	$0.000 < 0.05$	↑ 0.0016*





The announcement of the C19 pandemic by WHO affected the volatility of Biotech companies on the NASDAQ stock market

- ✓ *Some studies show the announcement of the C19 pandemic has a negative impact on stock prices, while other studies show a positive impact, depending on the event and individual companies.*
- ✓ *Market reaction depends on many factors such as the market's view of the outlook for the economy and the biotechnology sector, the degree of certainty regarding the effectiveness and deployment of the C19 vaccine, and developments in handling the pandemic.*
- ✓ *The announcement of the C19 pandemic could possibly have a negative impact on the biotechnology market as it sparks fears of economic and business instability.*
- ✓ *Investors need to do an analysis and consider the factors that affect the market before making an investment decision.*

confidence level 95%
P-value < 0.05 – Significant

H0 rejected
H1 accepted

Volatility after > Volatility before



The announcement of the C19 vaccine production commitment affects the volatility of Biotech companies on the NASDAQ stock market

- ✓ *The announcement of vaccine production commitments can affect stock volatility by providing new information to the market and changing the future expectations of related companies.*
- ✓ *Previous studies have been conducted to analyze the impact of the C19 pandemic on stock market volatility, including the impact of vaccine announcements.*
- ✓ *The conclusion of several studies is that the pandemic and vaccine announcements have had a significant impact on stock market volatility and need to be understood in an effort to overcome the economic impact of the pandemic.*
- ✓ *Volatility can be related to changes in market expectations about the economy in the future.*
- ✓ *Volatility fluctuation data shows markets are very responsive to news about vaccines and show divergent expectations and uncertainties.*

confidence level 95%
P-value < 0.05 – Significant

H0 rejected
H1 accepted

Volatility after > Volatility before



Volatility P1 VS Volatility P2

- ✓ *These results indicate that the announcement of the C19 pandemic and vaccine production commitments had a significant impact on the volatility of NASDAQ-listed biotechnology companies.*
- ✓ *The positive market reaction after the announcement of the COVID-19 pandemic and vaccine production commitments can be attributed to investor optimism and confidence in the measures taken to contain the pandemic.*
- ✓ *This suggests that psychological factors can influence financial markets in addition to financial and economic considerations.*
- ✓ *The announcement of the C19 vaccine production commitment is considered more significant or has a greater impact on financial markets and the economy.*

confidence level 95%

P-value < 0.05 – Significant

Volatility P2 > Volatility P1



- ✓ Overall, the results show that new information has been indicated in integrating into stock market prices, which means the stock market is still informationally efficient, so investors can still benefit by analyzing the available information and conducting appropriate stock transactions.
- ✓ However, the EMH theory does not mean that the stock market is always efficient, but rather that the stock market tends to be efficient in the long run.
- ✓ Events such as the C19 pandemic can trigger temporary imbalances in the stock market and cause significant volatility and abnormal returns.
- ✓ Investors reacted and changed the share prices of biotechnology companies along with news of the pandemic and the production of C19 vaccines.
- ✓ A further test of P1 vs P2 volatility shows significant differences in stock volatility, providing a complete picture of how biotech companies are moving in the market during the pandemic.

confidence level 95%

P-value < 0.05 – Significant

Volatility $P2 > P1$



- Factors that cannot be anticipated or predicted can affect stock prices, such as sudden changes in **regulation** or government policy.
- Regulations such as social distancing and **lockdowns** can affect a company's share price directly, by limiting the company's operations, as well as indirectly, by affecting the market.
- Trade or **supply chain** disruptions due to regulatory changes such as social distancing and lockdowns can affect a company's share price, especially if the company depends on supplies from abroad or has operations in countries affected by the regulation.
- Changes in the supply chain can reduce a company's performance and lower its share price.

**Regulations and Disruptions
that Affect Company Stock
Prices**



- Biotech companies can anticipate the impact of regulatory changes and disruptions by stocking up enough **raw materials** or finding **alternative sources** of raw materials.
- In this way, companies can maintain vaccine production and prevent revenue declines that could have a negative impact on stock prices.
- The stock market efficiently integrates significant new information, including information about trade or supply chain disruptions.
- Affected companies may experience changes in share prices that correspond to the expected impact on company performance.

**Anticipating the Impact of
Regulations and Disruptions
on Raw Material Supply and
Stock Prices**



Parameter	AstraZeneca	Moderna	Dynavax
Income (B USD) 2019	24.4	0.25	35.2
Income (B USD) 2020	26.6	0.80	46.6
Net Profit (B USD) 2019	1.2	-0.8	-0.83
Net Profit B USD) 2020	3.2	-0.75	-0.89
Liquidity Ratio 2019	0.98	2.68	2.77
Liquidity Ratio 2020	0.95	2.77	3.29
Quick Ratio 2019	0.75	2.56	3.01
Quick Ratio 2020	0.72	2.64	3.01

Parameter	Aztra Zeneca	Moderna	Dynavas
Debt to Equity Ratio 2019	1.03	0.05	1.41
Debt to Equity Ratio 2020	1.13	0.04	1.26
Debt to Asset Ratio 2019	0.34	0.03	0.59
Debt to Asset Ratio 2020	0.36	0.02	0.56
P/E Ratio 2019	48.7	-19.5	N/A
P/E Ratio 2020	54.8	-88.8	N/A
Dividend Yield 2019	3%	N/A	N/A
Dividend Yield 2020	2.7%	N/A	N/A
EBITDAC Q4 2021 (mio USD)	2,805	2,12	-4

Data sources: Financial Statements AztraZeneca, Moderna, Dynavax pada tahun 2020, dan Q4 2021

Table of Financial Performance and EBITDAC of Three Biotechnology Companies in 2020 and Q4 2021



Company	Innovative Products	Pandemic Impact
AstraZeneca	Vaksin COVID 19: Oxford/AstraZeneca	The main source of income and growth, but facing challenges and controversies
Moderna	Vaksin COVID 19: Moderna	Significant sources of revenue and growth, but face challenges in production and distribution, as well as concerns about safety and effectiveness
Dynavax	Adjuvant CpG 108 for COVID 19 vaccine	A major source of growth and innovation, but it faces strong competition in the COVID 19 adjuvant market from other companies

Competition and Product Innovation in the COVID 19 Vaccine Industry



1. Product diversification
2. Strengthen supply & chain
3. Increase production efficiency and flexibility
4. Maintaining a reserve of funds
5. Conduct risk monitoring

**Anticipation of
Biotechnology Companies
in the Face of Factors
Affecting Stock Prices**



Development of the **Efficient Market Hypothesis** (EMH) theory. The results show that the challenges faced by the efficient market hypothesis (EMH) during the COVID 19 pandemic. This pandemic gave rise to several new developments and innovations in EMH theory, such as the theory of "**Adaptive Market Hypothesis (AMH)**", **behavioral finance**, and the concept of "**network effects**". Showing abnormal increases in returns, trading volume activities, stock liquidity, and stock volatility after events, this study can explore the concept of information efficiency and potential limitations of EMH theory in the context of major events such as the COVID 19 pandemic and the announcement of vaccine production commitments.

CONCLUSION



The announcement of the C19 pandemic by the WHO has no effect on abnormal returns on shares of biotech companies listed on the NASDAQ stock market.



The announcement of the C19 pandemic by the WHO affected the TVA of biotech companies listed on the NASDAQ stock market.



The announcement of the C19 pandemic as information that can provide good prospects for biotech companies in the future.



Investor activity experienced a significant increase in stock transaction volume.



The announcement of the commitment to produce the C19 vaccine has no effect on abnormal returns on shares of biotech companies listed on the NASDAQ stock market.



The announcement of the C19 vaccine production commitment affects TVA, a biotech company listed on the NASDAQ stock market



Market efficiency theory forms semi-strong when the event period is reflected by published information



The announcement of the C19 vaccine production commitment can give a good signal to investors, so it tends to result in investors buying shares of biotech companies.



12pm

CONCLUSION (cont.)



The announcement of the C19 pandemic by WHO affected the liquidity of shares of biotech companies listed on the NASDAQ stock market.



The announcement of the C19 pandemic by WHO has an effect on the volatility of shares of biotech companies listed on the NASDAQ stock market.



There is an opportunity to earn greater profits through stock trading activities



There is a major influence on changes in the market price of biotechnology stocks on the NASDAQ

The announcement of the C19 vaccine production commitment affects the liquidity of shares of biotech companies listed on the NASDAQ stock market.



The announcement of the C19 vaccine production commitment has an effect on the volatility of shares of biotech companies listed on the NASDAQ stock market.

There is a positive impact on increasing stock liquidity and indirectly increasing investor interest



Market prices that tend to decrease compared to the price of new shares offered - price fluctuations do not occur on the stock exchange.

12pm



obrigado

Dank U

Merci

mahalo

Köszi

спасибо

Grazie

Thank
you

mauruuru

Takk

Gracias

Dziękuję

Děkuju

danke

Kiitos



Thank you



BACK UP

COVID-19

10

12pm

2pm



Parameter	Perusahaan		
	AstraZeneca	Moderna	Dynavax
Pendapatan 2020 (miliar USD)	26,6	0,803	0,0466
Laba Bersih 2020 (miliar USD)	3,2	-0,747	-0,0885
Rasio Likuiditas	0,95	2,77	3,29
Rasio Utang Terhadap Ekuitas	1,13	0,04	1,26
Rasio Utang Terhadap Aset	0,36	0,02	0,56
Rasio P/E	54,8	-88,8	-1,56
Dividen Yield	2,70%	N/A	N/A
EBITDAC Q4 2021 (juta USD)	2,805	2,12	-4

**Kinerja Keuangan dan EBITDAC
Tiga Perusahaan Bioteknologi
pada Tahun 2020 dan Q4 2021**



Parameter	AstraZeneca	Moderna	Dynavax
Pendapatan (miliar USD) 2019	24.4	0.25	35.2
Pendapatan (miliar USD) 2020	26.6	0.80	46.6
Laba Bersih (miliar USD) 2019	1.2	-0.8	-0.83
Laba Bersih (miliar USD) 2020	3.2	-0.75	-0.89
Rasio Likuiditas 2019	0.98	2.68	2.77
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**Kinerja Keuangan dan EBITDAC
Tiga Perusahaan Bioteknologi
pada Tahun 2020 dan Q4 2021**



Seminar International

7 July 2023

Differences in **Health Care Workers' Engagement** between Government and Private Hospitals in Economic Management

Tita Miawati
Management Science Study Program
Human Resources Management



THE ANATOMY OF MANUSCRIPT

1. What is Known?
(Understanding of the Word)

2. What is Unknown
(What is the gap of the research?)

3. How & Why?
(The Rationale and purpose/hypothesis of the research)

4. Methods
(What did the researcher do?)

5. Results
(What results did the researcher get?)

6. Discussion
(How do the results fill the gap?)

7. Conclusion
(What does this mean for us going forward?)



Source: Wordvice

INTRODUCTION

“Healthcare workers have an essential role in patient recovery in the hospital”.

- Frontline in controlling and preventing epidemics (He et al., 2023).
- Patient engaged and disengage depend on their attitude (Nhemachena et al., 2023).
- Directly provide service care to patients, even related to patient safety (Cheng et al., 2022).
- Number of Healthcare workers 85,9% of total employee in Hospital, they present the actual process of hospital services and build patients' perceptions & expectations (Budi Setyawan et al., 2019).

“Engagement can positively impact health workers, hospitals, and patients”.

- Health Worker: Vigor, dedication, and absorption (Hai, L. C., & Tziner, 2021). Make extra efforts, enthusiasm, and absorption at work; Do not complete the job in a hurry but in the best way (Al-Dossary, 2022)
- Patients: Associated with nurses' caring behavior toward patients (De Los Santos & Labrague, 2021);
- Hospitals: reducing turnover intention, and commitment to achieving organizational targets (Slåtten et al., 2022); Higher productivity and improve the quality of service to patients (Decuyper & Schaufeli, 2021).

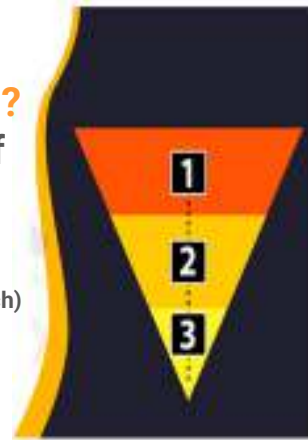
Government hospitals become more effective with productive health workers, and private hospitals will get higher profits because of excellent quality service (Alumran et al., 2021)

INTRODUCTION

1. What is Known?
(Understanding of the world)

2. What is Unknown
(What is the gap of the research)

3. How & Why?
(The Rationale and purpose/hypothesis of the research)



PHENOMENON HEALTH WORKERS IN INDONESIA HOSPITAL

- 56% *burnout syndrome* in Gov. Hospital (Yestiana et al., 2019)
- 28,6% burnout syndrome of health workers in Indonesian Hospitals (Lamuri et al., 2023),
- Almost all of the nurse anesthetics reported burnout (Parwati et al., 2023),
- The Covid-19 pandemic pressured Healthcare worker with burnout (Teo et al., 2022; Ningrum, 2023)

Burnout

" Burnt out employees have no plans to leave their organization, physically "keep up with the clock" but emotionally "quit (Strumwasser & Virkstis, 2015).

- The public hospital needs to improve the quality of service to obtain patient satisfaction (Srimulyani & Hermanto, 2022).
- There is a phenomenon of updating health services in Indonesian hospitals because patients are knowledgeable and demanding of the type and level of healthcare they want to experience (Kot & Syaharuddin, 2020),

Unsatisfied patient

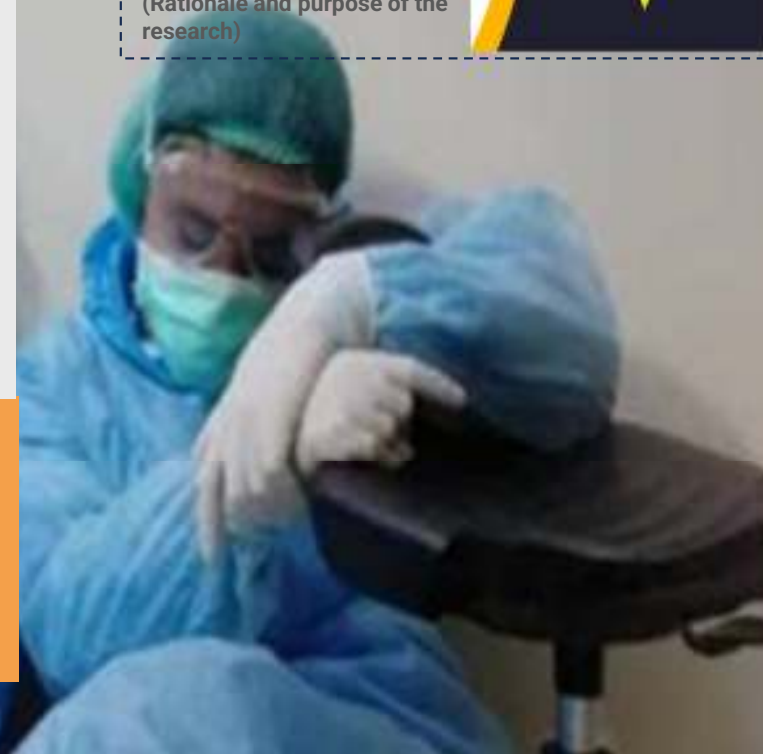
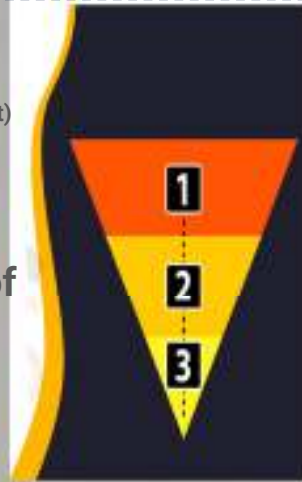
The lack of health worker engagement causes insufficient in providing quality service in the hospital

INTRODUCTION

1. **What is Known?**
(Understanding of Engagement)

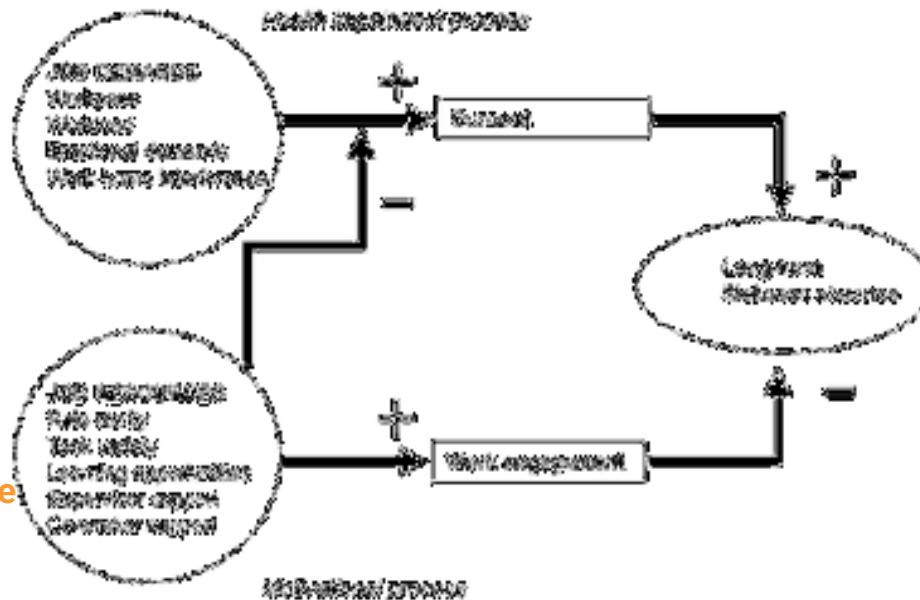
2. **What is Unknown**
(What is the gap of the research)

3. **How & Why?**
(Rationale and purpose of the research)



Job Demand-Resources Theory

Which hospital that provide more job resources?
Government or Private Hospital?



INTRODUCTION

1. What is Known?
(Understanding of Engagement)

2. What is Unknown
(What is the gap of the research)

3. How & Why?
(Rationale and purpose of the research)



The Research Purposes:

- To identify the engagement level of health workers in Government and Private hospitals → benchmark hospitals with lower level of engagement to hospitals with higher level of engagement.
- To identify the factors as Job Resources that can drive health worker engagement *Strengthening Organizational Culture (Nahr & Nigar, 2018) and fostering Servant Leadership (Yagil & Oren, 2021) as resources can improving health worker engagement*

QUALITATIVE APPROACH



Participants:
4-6 Persons @ each hospital



Location & Population

- Government Hospital (1) dan Private Hospitals (2) C class in Tasikmalaya.
- Population: frontline Health Workers, permanent employees, have at least one year of service in hospital

OWNERSHIP	HOSPITAL	POPULATION
Government	SMC	149
Private	TMC	155
	JK	75

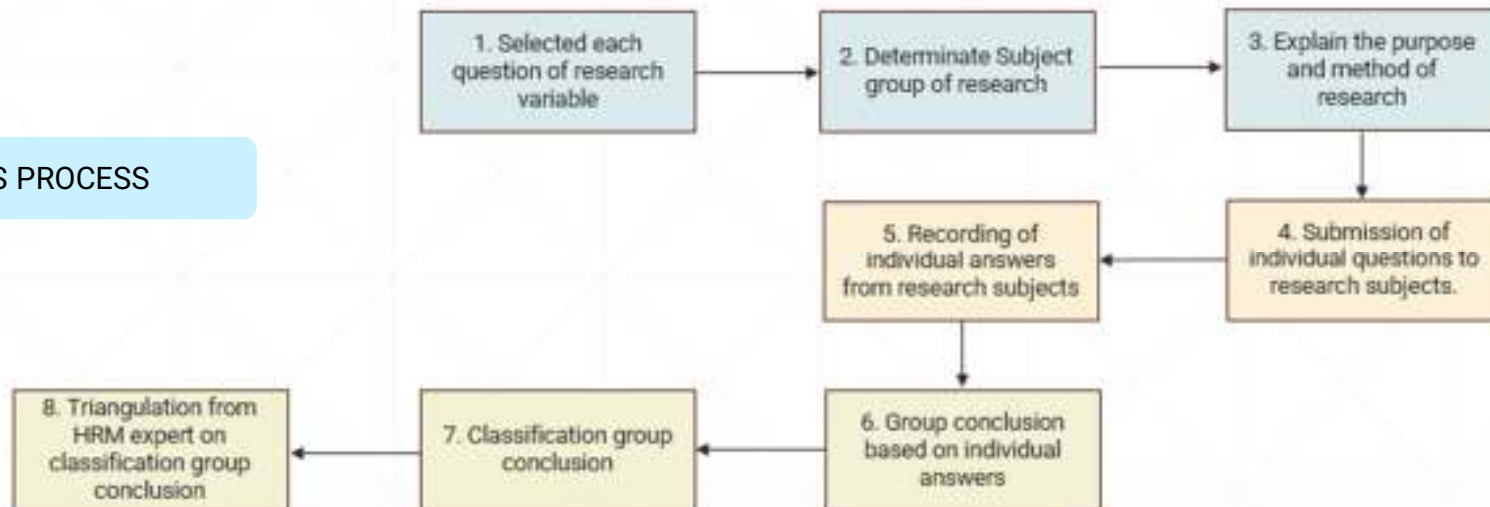
METHODS

To describe and defend design, data gathered, methods and procedures, sample and instrument used

1. Research Design
2. Population and Samples/Materials
3. Instruments
4. Procedure

4

8 STEPS PROCESS



RESULTS

No	Indicator	Government Hospital	Private Hospital
1	Vigor	HCWs feel energized when going to work every day. However, they feel less eager and reluctant to go to work after a day off. Category: moderate	HCWs feel high energy when going to work every day and are more excited to go to work during high workloads. Category: Very good
2	Loyalty	HCW uses personal simple equipment such as stationery to accomplish the task, if necessary. Category: Good	HCWs use personal equipment and personal facilities to accomplish the tasks, furthermore, they try to find other solutions, if lack resources. Category: Very good
3	Concern for Productivity	HCWs try developing more efficient methods by discussing with their superiors. Category: Good	HCWs do continuous improvement to find more efficient methods to improve patient care. Category: Good
4	Dedication	HCW are enthusiastic to contribute more to the company to improve and achieve better results for the organization as well as for HCW themselves. Category: Good	HCWs are enthusiastic to contribute more to the company to achieve better results, sometimes they are still thinking about work, over working hours. Category: Good
5	Ownership	Generally, HCWs know the reasons behind hospital policies. However, some particular policies are not explained clearly. Category: moderate	HCWs know the reasons behind the hospital policies under socialization, especially the policies related to their respective jobs. Category: Good
6	Absorption	HCWs are happy at work, however, they work following working hours only. Category: moderate	HCWs are happy at work, highly concentrated, and sometimes they still think about their job, over working time. Category: Good
7	Career Development	HCWs have good career opportunities in organizations if they demonstrate adequate competence. Category: Good	HCWs have good career opportunities in the organization, and for vacant positions, the hospital will give priority to internal candidates. Category: Good

RESULTS, DISCUSSION AND CONCLUSION

Results

What results did researcher get?

Discussion

How do the results fill the gap?

Conclusion

What does this mean for us going forward?



- Different levels of engagement between health workers in government and private hospitals in four indicators namely **vigor, loyalty, ownership, and absorption**
- Health worker in a private hospital shows higher engagement than in a government hospital.

“Health worker in a private hospital showed higher engagement than in a government hospital”.



Discussion:

- Most private organizations **provide several incentives** to encourage higher-performing private workers compared to a government organization (Badu Agyemang et al, 2013)
- Government hospitals are **public services that focus on patient accessibility** and **less focus on quality healthcare**, while private hospitals focus on better outcomes and therefore must concentrate on the quality of their services to get greater profits (Alumran et al., 2021).



ORGANIZATIONAL CULTURE

GOVERNMENT HOSPITAL

- + Surveying patients to get feedback adopting better ways to be more efficient service,
- + Open communication under formal meetings
- + Drive HCWs to solve problems with multilevel consultation.
- Unclear reasons for some punishments.

PRIVATE HOSPITALS

- + Have a strong culture as normative values shared between HCWs.
- + Show strong points on care for clients, adaptability, communication, reward & incentive system and value.
- + Offer better service day by day, based on input from the patients through online or paper base questionnaires.
- + Adopt IT system for ease of daily operation
- + 24-hour open communication between superior and subordinate,
- + Provide tangible and intangible incentives for HCWs
- + Instill the value "Patient is my Family" to be manifested during caring for the patient.

RESULTS, DISCUSSION AND CONCLUSION

Results

What results did researcher get?

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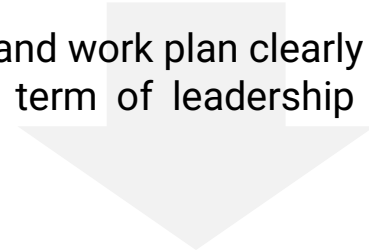


SERVANT LEADERSHIP

GOVERNMENT & PRIVATE HOSPITAL

The superior:

- + Listens to the subordinate and provide immediate feedback to give alternative solutions, ideas, and recommendation,
- + Open accepting constructive criticism to improve.
- + Support clarifying the problem and help well when subordinate face an emotional problem
- + Aware of the real-time team situation.
- + Persuasion with giving understandable explanations for their subordinate to do the task.
- + Conduct discussion to make a program and work plan clearly
- + Show appropriate competence both in term of leadership and technical job.



Both government and private hospitals apply servant leadership, moreover, servant leadership has a significant and positive impact on engagement (Hai, L. C., & Tziner, 2021; Aboramadan & Dahleez, 2020)

RESULTS, DISCUSSION AND CONCLUSION

Results

What results did researcher get?

Discussion

How do the results fill the gap?

Conclusion

What does this mean for us going forward?



CONCLUSION

- There are different levels of healthcare workers' engagement in government and private hospitals.
- The engagement level of health workers in private hospitals is higher than in government hospitals.

RESULTS, DISCUSSION AND CONCLUSION

Results

What results did researcher get?

Discussion

How do the results fill the gap?

Conclusion

What does this mean for us going forward?



• Recommendation

- Increase the Engagement of Healthcare Workers in Government Hospitals

1 Vigor

3 Ownership

2 Loyalty

4 Absorption

1

Strengthening the implementation of **Organizational Culture** in daily activities

2

Fostering **Servant Leadership** that serves subordinates

An aerial photograph of Universitas Pakuan, a large university building with a prominent yellow and green facade. The building is situated in a city, with a multi-lane road and greenery in the foreground. In the background, there are mountains under a cloudy sky. The text "Terima kasih" is overlaid in a yellow, cursive font across the center of the image.

Terima kasih

Differences in Health Care Workers' Engagement between Government and Private Hospitals in Economic Management

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ABSTRACT

Objectives: The research objective is to find efforts to increase the engagement of healthcare workers (HCWs) in government and private hospitals by identifying differences in engagement between HCWs in government and private hospitals. The level of engagement affects quality service.

Design/Methodology/Approaches: The participants of this study were HCWs from one government hospital and two private hospitals. This study was qualitative research; the data was collected through Forum Group Discussions (FGD). The researchers collected data from three groups of HCWs from each hospital. Each group consists of 4-6 HCWs with the criteria as permanent employees in government and private hospitals and have a minimum service period of one year there.

Results: Healthcare worker Engagement in private hospitals is higher than in government hospitals, especially on the vigor, loyalty, ownership, and absorption indicators. Based on the Job Demand-Resources theory, government hospitals should enhance the resources to support healthcare workers as private hospitals. Those resources are mainly intangible, including positive organizational culture and servant leadership that is adjusted to the capabilities of the government hospital.

Conclusion: There are different levels of healthcare workers' engagement in government and private hospitals, where the engagement level of health workers in private hospitals is higher than in government hospitals. Thus, efforts are needed to increase the engagement of healthcare workers in government hospitals, especially on indicators such as vigor, loyalty, concern for productivity, dedication, and absorption, through strengthening the implementation of organizational culture in daily activities and fostering servant leadership that serves subordinates.

Keywords: Healthcare worker, engagement, government hospital, private hospital, organizational culture, servant leadership

1. INTRODUCTION

Healthcare workers have an essential role in patient recovery in the hospital. Healthcare workers are personnel at the frontline of controlling and preventing epidemics (He et al., 2023). Healthcare workers play an important role in patient engagement, and negative attitudes can drive patients to disengage (Nhemachena et al., 2023). The role of nurses as a part of healthcare workers has proven to be very important because they directly provide service care to patients, even related to patient safety (Cheng et al., 2022). The hospital services provided by healthcare worker is the actual process of hospital services and build patients' perceptions and expectations (Budi Setyawan et al., 2019).

Engagement can positively impact health workers, hospitals, and patients. Work engagement is a construct of personal and work motivation characterized by vigor, dedication, and absorption (Hai, L. C., & Tziner, 2021). The engagement was significantly associated with nurses' caring behavior toward patients (De Los Santos & Labrague, 2021). Engaged health workers are characterized by a willingness to make extra efforts in getting the job done, enthusiasm about the organization's goals and mission, and absorption at work; they do not complete the job in a hurry but in the best way (Al-Dossary, 2022). Nurse engagement correlates with job satisfaction, turnover intention, and commitment to achieving organizational targets (Slåtten et al., 2022). Engaged health workers can drive higher productivity and improve the quality of service to patients (Decuyper & Schaufeli, 2021). Government hospitals become more effective with productive health workers, and private hospitals will get higher profits because of excellent quality service (Alumran et al., 2021).

However, the fact shows that health worker engagement in hospitals is still questionable because there are many burn-out cases, especially during the pandemic. A study of Indonesian nurses in a government hospital showed that the out was as high as 56% (Yestiana et al., 2019). Burnout syndrome was found in 28,6% of healthcare workers in Indonesian hospitals (Lamuri et al, 2023). Almost all of the nurse anesthetists reported burnout (Parwati et al., 2023). The COVID-19 pandemic pressured healthcare workers with burnout (Teo et al., 2022; Ningrum, 2023). Besides, the lack of health worker engagement causes insufficient in providing quality service in the hospital. The public hospital needs to improve the quality of service to obtain patient satisfaction (Srimulyani & Hermanto, 2022). There is a phenomenon of updating health services in Indonesian hospitals because patients are knowledgeable and demanding of the type and level of healthcare they want to experience (Kot & Syaharuddin, 2020).

Health worker engagement is important in providing quality and productive services in hospitals. By Job Demand Resources Theory, hospitals that provide higher resources will have employees with higher engagement. This study has the purpose to identify the engagement level of health workers in Government and Private hospitals, furthermore, hospitals with lower levels of engagement can emulate the efforts made in hospitals with higher levels of engagement. Strengthening organizational culture and fostering servant leadership as resources can improving health worker engagement.

2. MATERIALS AND METHODS

The research was located in three hospitals C class with similar facilities and service capabilities in Tasikmalaya, Indonesia. Those three hospitals were one government hospital and two private hospitals.

The author determined the criteria of the study participant are frontline health workers such as nurses, midwives, pharmacy staff, laboratory analysts, nutritionists, and physical therapists. All the participants are permanent employees and have at least a year of service there. The research used a qualitative approach with a systematic procedure to collect and organize the data from the participants to be summarized (Rubini and Sunaryo, 2016).

The researcher obtained the data through discussion among a group of participants. Each

group consists of 4-6 participants in each hospital. The participants were chosen based on purposive sampling. The open-ended questions were selected based on the strongest correlation coefficient between the score of the question items and the total score of variables from the initial data survey by questionnaire. Forum Group Discussion (FGD) was conducted for one hour and the information was taken based on a group approach. The research was conducted in the period July - December 2022.

The primary data collected from FGD and secondary data from evidence, article, and research works were analyzed and evaluated and a data table was generated from it. The validity of the results was examined by triangulation technique by comparing the finding of researchers and Human Resources expertise. A similar finding from triangulation has proved the confident result of the study.

3. RESULTS AND DISCUSSION

Several findings and challenges were found from this research such as the differences in health worker engagement levels of government and private hospitals and the impact of organizational culture and servant leadership on health worker engagement.

The result of the group discussion about Engagement is shown in the following table.

Table 1 Forum Group Discussion Result about Engagement

No	Indicator	Government Hospital	Private Hospital
1	Vigor	HCWs feel energized when going to work every day. However, they feel less eager and reluctant to go to work after a day off.	HCWs feel high energy when going to work every day and are more excited to go to work during high workloads.
2	Loyalty	HCW uses personal simple equipment such as stationery to accomplish the task, if necessary.	HCWs use personal equipment and personal facilities to accomplish the tasks, furthermore, they try to find other solutions, if lack resources.
3	Concern for Productivity	HCWs try developing more efficient methods by discussing with their superiors.	HCWs do continuous improvement to find more efficient methods to improve patient care.
4	Dedication	HCW are enthusiastic to contribute more to the company to improve and achieve better result for the organization as well as for HCW themselves	HCWs are enthusiastic to contribute more to the company to achieve better results, sometimes they are still thinking about work, over working hours.
5	Ownership	Generally, HCWs know the reasons behind hospital policies. However, some particular policies are not explained clearly.	HCWs know the reasons behind the hospital policies under socialization, especially the policies related to their respective jobs.
6	Absorption	HCWs are happy at work,	HCWs are happy at work, highly

		however, they work following working hours only.	concentrated, and sometimes they still think about their job, over working time.
7	Career Development	HCWs have good career opportunities in organizations if they demonstrate adequate competence.	HCWs have good career opportunities in the organization, and for vacant positions, the hospital will give priority to internal candidates.

It was found different levels of engagement between health workers in government and private hospitals in four indicators namely vigor, loyalty, ownership, and absorption. A health worker in a private hospital shows higher engagement than in a government hospital. This finding is consistent with the conclusion of the study by Badu Agyemang et al (2013) entitled "Employee Work Engagement and Organizational Commitment a Comparative Study of Private a Public Sector Organization" that most private organizations provide several incentives to encourage higher-performing private workers compared to a government organization. Government hospitals are public services that focus on patient accessibility and less focus on quality healthcare, while private hospitals focus on better outcomes and therefore must concentrate on the quality of their services to get greater profits (Alumran et al., 2021). These findings are supported by the theory of Job Demand-Resources which shows that a combination of low job resources and a high volume of work will reduce the level of employee engagement.

After deeper discussion, it was found that private hospitals have a strong culture as normative values shared between HCWs. The private hospitals show strong points on care for clients, adaptability, communication, reward, and incentive system and value. The private hospitals offer better service day by day, based on input from the patients through online or paper base questionnaires. The private hospitals adopt Information and Technology system for ease of daily operation, 24-hour open communication between superior and subordinate, provide tangible and intangible incentives to selected HCWs and instill the value "Patient is my Family" to be manifested during caring for the patient. According to HCWs in the government hospital, the hospital develops a culture within an organization such as surveying patients to get feedback adopting better ways to be more efficient service, open communication under formal meetings, drive HCWs to solve problems with multilevel consultation. However, HCWs have unclear reasons for some punishments. This finding shows that the culture of private hospitals is stronger than government hospitals, therefore, the organizational culture can significantly increase work engagement. Hospitals that can internalize the organization values of a superior culture in hospitals, will drive the HCWs engagement higher (Srimulyani & Hermanto, 2022; Machmed Tun Ganyang, 2019).

Servant leadership behavior with seven indicators, namely listening, empathy, healing, awareness, persuasion, conceptualization, and stewardship, is applied in government hospitals and private hospitals. According to HCWs, In Government and private hospitals, the superior listens to the subordinate and provide immediate feedback to give alternative solutions, ideas, and recommendation, the superior are open to accepting constructive criticism to improve. According to HCWs in government and private hospital,

the superior support clarifying the problem and help well when subordinate face an emotional problem, while the superior is aware of the real-time team situation. The similar superior persuasion in the government and private hospitals wherein the superiors give understandable explanations for their subordinate to do the task. Moreover, the superior conduct discussion to make a program and work plan clearly and they show appropriate competence both in term of leadership and technical job. Both government and private hospitals apply servant leadership, moreover, servant leadership has a significant and positive impact on engagement (Hai, L. C., & Tziner, 2021; Aboramadan & Dahleez, 2020).

Based on the Job Demand-Resources theory, to enhance HCWs' engagement, government hospitals should enhance the resources to support healthcare workers as private hospitals. Those resources are mainly intangible, including positive organizational culture and servant leadership that is adjusted to the capabilities of the government hospital.

CONCLUSION AND IMPLICATIONS

There are different levels of healthcare workers' engagement in government and private hospitals, where the engagement level of health workers in private hospitals is higher than in government hospitals. Thus, efforts are needed to increase the engagement of healthcare workers in government hospitals, especially on indicators such as vigor, loyalty, concern for productivity, dedication, and absorption, through strengthening the implementation of organizational culture in daily activities and fostering servant leadership that serves subordinates.

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

AUTHORS' CONTRIBUTIONS

The authors contributed equally to the conception and design of the study.

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LAMPIRAN
&
DOKUMENTASI

Yayasan Pakuan Siliwangi

Universitas Pakuan

SEKOLAH PASCASARJANA

Kejujuran, Integritas, Kreativitas, Kualitas, Harmoni

JJln. Pakuan PO BOX 452 Bogor Telp./Fax (0251) 8320123 E-mail: pasca@unpak.ac.id

Web: www.pasca.unpak.ac.id



No : 836/SPs/Unpak/VI/2023
Attachment : Letter of Unpak Postgraduate School
Subject : *Reviewer Invitation letter*

Bogor, June 21rd 2023

To : Prof. Dr. Abdul Talib Bon
Faculty Technology Management and Business
Universiti Tun Hussein Onn Malaysia

Dear Professor Talib,

We are pleased to invite you to become a Reviewer at the International Seminar. Which will be held by the Doctoral Program of Management Science (S3) Postgraduate School of Pakuan University which will be on the agenda:

Day, Date : Friday, Juli 07, 2023
Time : 16.00 – 19.00 WIB
Place : Mashudi Building 3rd Floor Auditorium
Room Pakuan University Graduate School

It is an honor and privilege to invite you to participate in this Conference as Reviewer for the International Seminar. We believe that your contribution to this field is unparalleled and a International Seminar on this topic will be of great benefit.

We would like to take this opportunity to thank for your participation in the International Seminar. Thank you very much for your great attention and cooperation.

Dean

Prof. Dr. Ing. Soewarto Hardhienata

NIP. 195812131982111001

Forwards to:

Dear Vice Dean for Academic and Student Affairs

Dear Vice Dean for Administration and Finance

Attachment to the Dean's Letter of Unpak Postgraduate School


Number : 836/SPs/Unpak/VI/2023

Date : June 21, 2023

**INTERNATIONAL SEMINAR SCHEDULE
MANAGEMENT SCIENCE STUDY PROGRAM
PAKUAN UNIVERSITY GRADUATE SCHOOL
FRIDAY, JULY 7, 2023**

No.	Time	Event	Description
1	15.30 – 16.00	Opening ceremony: 1. Singing the national anthem Indonesia Raya 2. Prayer reading 3. Remarks by the Head of Study Program 4. Remarks by the Dean of SPs Unpak as well as opening the event	Organizers / Hosts
2	16.00 – 17.00	Main Event: 1. Dr. Suharni Rahayu - <i>Marketing Management</i>	Reviewer : Prof. Dr. Abdul Talib Bon - <i>Faculty Technology Management and Business, UTHM..</i> Moderator: Dr. Ir. Yuary Farradia, M.Sc., CPHCM., CBOA.
3	17.00 – 18.00	2. Woro Umayi Ananda - <i>Financial Management</i>	
4	18.00 – 19.00	3. Tita Mlawati - <i>Human Resource Management</i>	
5	19.00 - 19.15	Closing	Organizers / Hosts

Dekan,



Prof. Dr. Ing. H. Soewarto Hardhienata



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e-mail: pasca@unpak.ac.id web: www.pasca-unpak.ac.id



Nomor : 865/SPs/Unpak/VI/2023
Lampiran : 1 (satu) lembar
Perihal : Permohonan Sambutan

22 Juni 2023

Kepada : Yth. Yth. Prof. Dr. Hari Gursida, CA., M.M, CPA.
Ketua Program Studi Ilmu Manajemen
Sekolah Pascasarjana Universitas Pakuan

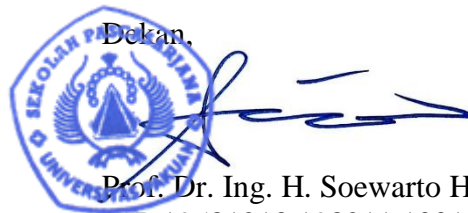
Dengan hormat,

Sehubungan dengan akan dilaksanakannya Seminar Internasional Manajemen yang diselenggarakan oleh Program Studi Ilmu Manajemen (S3) Sekolah Pascasarjana Universitas Pakuan, maka dengan ini kami mohon kesediaan Bapak untuk memberikan sambutan selaku Ketua Program Studi pada acara Seminar Internasional tersebut dengan topik “**Diseminasi Hasil Penelitian**”

Adapun Seminar Internasional tersebut akan dilaksanakan pada:

Hari, Tanggal : Jumat, 07 Juli 2023
Pukul : 15.30 WIB s.d. selesai
Tempat : **Zoom Meeting Room**
(**ID & Password menyusul**)

Demikian permohonan ini kami sampaikan. Atas perhatian dan perkenan Bapak, kami mengucapkan terima kasih.

Dekan,


Prof. Dr. Ing. H. Soewarto Hardhienata
NIP 19581213 198211 1001

Tembusan:

1. Yth. Wakil Dekan Bidang Akademik dan Kemahasiswaan;
2. Yth. Wakil Dekan Bidang SDM dan Keuangan.

Lampiran Surat Dekan Sekolah Pascasarjana Unpak

Nomor : 865/SPs/Unpak/VI/2023

Tanggal : 22 Juni 2023

**SUSUNAN ACARA SEMINAR INTERNASIONAL
PROGRAM STUDI ILMU MANAJEMEN
SEKOLAH PASCASARJANA UNIVERSITAS PAKUAN
JUMAT, 7 JULI 2023**

No.	Jam	Acara	Keterangan
1	15.00 – 15.30	Join zoom peserta, pemutaran video profil Unpak	Panitia
2	15.30 – 16.00	Acara pembukaan: 1. Menyanyikan lagu Kebangsaan Indonesia Raya 2. Pembacaan Doa 3. Sambutan Ketua Prodi 4. Sambutan Dekan SPs Unpak sekaligus membuka acara	Panitia/Pembawa Acara
3	16.00 – 17.00	Acara Inti: 1. Suharni Rahayu – Manajemen Pemasaran	Reviewer : Prof. Dr. Abdul Talib Bon - <i>Faculty Technology Management and Business, UTHM..</i> Moderator: Dr. Ir. Yuary Farradia, M.Sc., CPHCM., CBOA.
	17.00 – 18.00	2. Woro Umayi Ananda – Manajemen Keuangan	
	18.00 – 19.00	3. Tita Mlawati – Manajemen Sumber Daya Manusia	
4	19.00 - 19.15	Penutup	Panitia/Pembawa Acara



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Nomor : 8 6 5 / SPs/Unpak/VI/2023

22 Juni 2023

Lampiran : 1 (satu) lembar

Perihal : Permohonan Sambutan Pembukaan Seminar Internasional

Kepada : Yth. Prof. Dr. Ing Soewarto Hardhienata
Dekan Sekolah Pascasarjana Universitas Pakuan

Dengan hormat,

Sehubungan dengan akan dilaksanakannya Seminar Internasional Manajemen yang diselenggarakan oleh Program Studi Ilmu Manajemen (S3) Sekolah Pascasarjana Universitas Pakuan, maka dengan ini kami mohon kesediaan Bapak untuk memberikan sambutan sekaligus membuka pada acara Seminar Internasional tersebut dengan topik “**Diseminasi Hasil Penelitian**”

Adapun Seminar Internasional tersebut akan dilaksanakan pada:

Hari, Tanggal : Jumat, 07 Juli 2023
Pukul : 15.30 WIB s.d. selesai
Tempat : *Zoom Meeting Room*
(ID & Password menyusul)

Demikian permohonan ini kami sampaikan. Atas perhatian dan perkenan Bapak, kami mengucapkan terima kasih.

a.n. Dekan

Wakil Dekan Bidang Akademik,



Prof. Dr. Anna Permanasari, M.Si.
NIP 19581213 198211 1001

Tembusan:

1. Yth. Dekan;
2. Yth. Wakil Dekan Bidang SDM dan Keuangan.

Lampiran Surat Dekan Sekolah Pascasarjana Unpak

Nomor : 865/SPs/Unpak/VI/2023

Tanggal : 22 Juni 2023

**SUSUNAN ACARA SEMINAR INTERNASIONAL
PROGRAM STUDI ILMU MANAJEMEN
SEKOLAH PASCASARJANA UNIVERSITAS PAKUAN
JUMAT, 7 JULI 2023**

No.	Jam	Acara	Keterangan
1	15.00 – 15.30	Join zoom peserta, pemutaran video profil Unpak	Panitia
2	15.30 – 16.00	Acara pembukaan: 1. Menyanyikan lagu Kebangsaan Indonesia Raya 2. Pembacaan Doa 3. Sambutan Ketua Prodi 4. Sambutan Dekan SPs Unpak sekaligus membuka acara	Panitia/Pembawa Acara
3	16.00 – 17.00	Acara Inti: 1. Suharni Rahayu – Manajemen Pemasaran	Reviewer : Prof. Dr. Abdul Talib Bon - <i>Faculty Technology Management and Business, UTHM..</i> Moderator: Dr. Ir. Yuary Farradia, M.Sc., CPHCM., CBOA.
	17.00 – 18.00	2. Woro Umayi Ananda – Manajemen Keuangan	
	18.00 – 19.00	3. Tita Mlawati – Manajemen Sumber Daya Manusia	
4	19.00 - 19.15	Penutup	Panitia/Pembawa Acara



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Nomor : 8 6 5 / SPs/Unpak/VI/2023
Lampiran : 1 (satu) lembar
Perihal : Undangan Seminar Internasional

22 Juni 2023

Kepada : Yth. Bapak/Ibu
1. Wakil Dekan Bidang Akademik dan Kemahasiswaan
2. Wakil Dekan Bidang SDM dan Keuangan
3. Ketua Program Studi
4. Asisten Program Studi
Sekolah Pascasarjana Universitas Pakuan

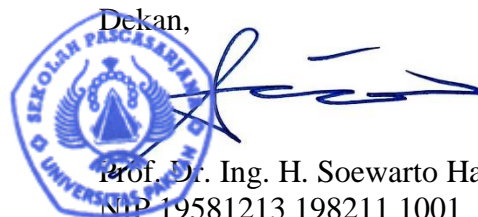
Dengan hormat,

Sehubungan dengan akan dilaksanakannya Seminar Internasional Manajemen yang diselenggarakan oleh Program Studi Ilmu Manajemen (S3) Sekolah Pascasarjana Universitas Pakuan, maka dengan ini kami mohon kehadiran Bapak/Ibu dalam acara Seminar Internasional tersebut dengan topik **“Diseminasi Hasil Penelitian”**

Adapun Seminar Internasional tersebut akan dilaksanakan pada:

Hari, Tanggal : Jumat, 07 Juli 2023
Pukul : 15.30 WIB s.d. selesai
Tempat : **Zoom Meeting Room**
(ID & Password menyusul)

Demikian permohonan ini kami sampaikan. Atas perhatian dan perkenan Bapak/Ibu, kami mengucapkan terima kasih.

Dekan,


Prof. Dr. Ing. H. Soewarto Hardhienata
NIP. 19581213 198211 1001



Lampiran Surat Dekan Sekolah Pascasarjana Unpak

Nomor : 865/SPs/Unpak/VI/2023

Tanggal : 22 Juni 2023

**SUSUNAN ACARA SEMINAR INTERNASIONAL
PROGRAM STUDI ILMU MANAJEMEN
SEKOLAH PASCASARJANA UNIVERSITAS PAKUAN
JUMAT, 7 JULI 2023**

No.	Jam	Acara	Keterangan
1	15.00 – 15.30	Join zoom peserta, pemutaran video profil Unpak	Panitia
2	15.30 – 16.00	Acara pembukaan: 1. Menyanyikan lagu Kebangsaan Indonesia Raya 2. Pembacaan Doa 3. Sambutan Ketua Prodi 4. Sambutan Dekan SPs Unpak sekaligus membuka acara	Panitia/Pembawa Acara
3	16.00 – 17.00	Acara Inti: 1. Suharni Rahayu – Manajemen Pemasaran	Reviewer : Prof. Dr. Abdul Talib Bon - <i>Faculty Technology Management and Business, UTHM..</i> Moderator: Dr. Ir. Yuary Farradia, M.Sc., CPHCM., CBOA.
	17.00 – 18.00	2. Woro Umayi Ananda – Manajemen Keuangan	
	18.00 – 19.00	3. Tita Mlawati – Manajemen Sumber Daya Manusia	
4	19.00 - 19.15	Penutup	Panitia/Pembawa Acara

Dekan,


Prof. Dr. Ing. H. Soewarto Hardhienata
NIP 19581213 198211 1001



CERTIFICATE APPRECIATION

Presented to:

Prof. Dr. Abdul Talib Bon

for participation as
Reviewer

at the international seminar "**Research Dissemination**"
on Friday July 07, 2023
organized by the management science study program
pakuan university postgraduate school

Dean,



Prof. Dr. Ing. H. Soewarto Hardhienata
NIP. 19581213 198211 1001



CERTIFICATE APPRECIATION

Presented to:

Prof. Dr. Ing. Soewarto Hardhienata

for participation as

Keynote Speaker

at the international seminar "**Research Dissemination**"

on Friday July 07, 2023

organized by the management science study program

pakuan university postgraduate school

Head of Study Program,

Prof. Dr. Hari Gursida, CA., M.M., CPA.



CERTIFICATE APPRECIATION

Presented to:

Prof. Dr. Hari Gursida, CA., M.M., CPA.

for participation as

Opening Speech

at the international seminar "**Research Dissemination**"

on Friday July 07, 2023

organized by the management science study program

pakuan university postgraduate school

Dean,



Prof. Dr. Ing. H. Soewarto Hardhienata

NIP. 19581213 198211 1001



CERTIFICATE APPRECIATION

Presented to:

Dr. Ir. Yuary Farradia, M.Sc., CPHCM., CBOA.

for participation as
Moderator

at the international seminar "**Research Dissemination**"
on Friday July 07, 2023
organized by the management science study program
pakuan university postgraduate school

Dean,



Prof. Dr. Ing. H. Soewarto Hardhienata
NIP. 19581213 198211 1001

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(Reviewer Prof. Dr. Abdul Talib Bon) (Ketua Program Studi) Prof. Dr. Hari Gursida, CA, M.M., CPA

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- Aldi Sophian
- Aria Catur
- Dr. H. Erik Irawan Suganda, MA
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- PARINGSIH Ningbawuk
- Dracantor (Suharni Rahmawati)

Invite Mute All

3:48 PM 7/7/2023

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- (Reviewer Prof. Dr. Abdul Talib ... [Mute]
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- AW Agung Wibowo [Mute]
- Agus Purwanto [Mute]
- Aldi Sophian [Mute]
- AC Aria Catur [Mute]
- DH Dr. H. Erik Irawan Suganda, MA [Mute]
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Presenter (Suharni Ra...) [Mute]

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- (Reviewer Prof. Dr. Abdul Talib ... [Mute]
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- AW Agung Wibowo [Mute]
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