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Analyzing The Effect of Alternative Banking Channels on the Employees Productivity of the Commercial Banks: Evidence from the State Bank of India

Vinod Kumar Adwani[1], Geetanjali Shrivastava[2]and Neeta Vaydande[3]

Abstract

Alternative Banking Channel is a branchless access channel to banking institutions at a lower cost, convenience, high subscription rate, faster transaction speed, and expanded income sources. The purpose of this study is to look on the other side also i.e. the productivity of the employees. For the study, State Bank of India has been selected (largest Public Sector Bank of India). Only secondary sources such as annual reports, published publications, conference papers, books, and banking websites were used to obtain the data. With the help of regression model, an attempt has been made to analyze the impact of alternative banking channels on the productivity of SBI's employees. According to this research, the rate of use of ABC products such as Online Banking, ATM Card, POS, Internet Banking, Mobile-Cash, Electronic Fund Transfer, and Real-Time Gross Settlement is increasing which has not only boosted the profitability of SBI but also increased the Business productivity of employees.

Key Words : Alternative Banking Channels (ABC), Automated Teller Machines (ATM), Business Per Employee (BPE), State Bank of India (SBI), point of sale (POS).

1. Introduction

Technology is now the life blood of each and every undertaking of services sector. As a vital component of the sector, commercial banks are also the major user of technology for the delivery of various services to their customers. In this way the technology-based banking products became an indispensable part of banking sector. Since last two decades both public and private sector banks have shown a robust growth in the use of not only the technology-based banking products, but they are also focussing on alternative banking channels. These channels are used for providing the financial services or products without relying upon the bank branches. Branchless banking is a cost saving method.

Now the banks are using these channels for almost all the banking services including core activity of deposits and credit. The impact of intensive use of alternative banking channels is visible on each space of banking sector.

In an effort to reach the unbanked people a revolution in the range of branchless banking solutions has been witnessed. The installation and operation of these channels requires more efficient and tech-savvy human resources in the banking sector, so the role of the employees is now more challenging and dynamic. With the existence of alternative banking channels, still bank halls continue to be congested which shows customers continue seeking services in bank branches. Due to the perpetual presence of the branch banking system, the employees are always playing a vital character in the banking sector. The role of human resources of banking sector is also distressing with the demanding practice of new alternative channels. There are many factors affecting the performance of a commercial bank, e.g., quality of management, product-portfolio, customer's satisfaction, level of competition, liquidity position etc. But it's mainly depending upon the productivity of their human resources. In modern age it's also affected by the span of alternative banking channels.

The productivity of the banking employees is closely linked with these channels, as various channels are now used as the substitute of the services provided by banking employees. For the growth and survival of each and every commercial bank, the coordination of the efficient employees and the effective alternative banking channels is critical. In this term private sector banks are well ahead of the public sector banks. We can observe this through the greater efficiency of employees of the private sector banks and the wide use of the alternative banking channels by them. Now with the increasing competition and the presence of more demanding customers, public sector banks like SBI are also focusing on the alternative banking channels.

The aim of this research is to understand the relationship between alternative banking channels and employee productivity. In more detail, to determine how ATM, internet banking, and mobile banking impact the productivity (in the terms of business, revenue and profit) of bank employees. The study will contribute knowledge by discovering the impact of alternative banking channels on the productivity of the employees of leading public sector bank of India i.e., State Bank of India.

1.1 Alternative Banking Channels (ABC):

Indian Banking sector is one which has perceived incredible adaptations in its day-to-day business dealings due to the advanced technology. E-Banking or alternate delivery channels or Alternate Banking Channels (ABC) are the results of advanced technology which leads to the branchless banking concept. It is becoming a dynamic element in delivery of banking services to the customers. These channels are used for delivering the financial services or products without relying upon the bank branches. Branchless Banking is the order of today & tomorrow. It is a cost saving method. While this strategy may complement an existing bank branch network for giving customers a broader range of channels through which they can access the financial services. These channels can replace the Brick & mortar branch structure of Indian banking sector.

"E-banking includes the provision of retail and small value banking products and services through the electronic channels as well as a large value in electronic payments and other wholesale banking services delivered electronically."

Basel Committee on Banking Supervision (1998)

Most significant feature of the alternate channels is availability on 24 X 7 with a focus on delivering the higher quality of service across the multiple channels like phone banking, internet banking, Mobile banking, Business Correspondents (BCs), call centers, Automated Teller Machine (ATM), Cash Deposit Machine (CDM), Point of Sale (POS) terminal, credit cards, debit cards, EFT, RTGS, MICR clearing and Passbook Kiosk. Reserve Bank of India (RBI) instructed all the banks to focus on the alternative banking channels in order to retain loyalty among the customers.

Advantages of the alternate banking channels:

Paperless and eco-friendly Banking

Reduction in establishment and operating cost for banks.

Reduction in transportation and execution cost for customers

Movable and placeless

24X7 availability.

Suitable for all age groups

Faster, secure, and convenient delivery of services. Now customers can execute most of the financial and non-financial transactions through alternate channels such as withdrawal of cash, deposits of cash, pass--book printing, account statement request, cheque book request, opening a fixed deposit account, purchase of securities, apply for new debit card or credit card, payment of utility bills, renewal of fixed deposit, submission of Form 15G/15H, transfer of funds etc.

1.2 Employees Productivity:

What is productivity? Let's start with the answer to this question. As we know the process of production is contributed by four major inputs that are land, labour, capital and entrepreneurship. Productivity is the simple relationship between the inputs (or we can say the resources used in the process of the production of goods or services) and the resulted output (or we can say production or yield). In the term of the formula:

Productivity = Output / Input

With the measurement of the productivity, we can easily determine the performance and efficiency of one particular type of input or more than one input. Banking is the mental labour-based industry, as it is completely depending upon its employees working. Some parameters are specially developed for the analysis of the productivity of employees of the banking sector, such as Business Per Employee (BPE), Revenues Per Employee (RPE), Profit Per Employee (PPE) etc. With the analysis and interpretation of these parameters we can easily compare and assess their performance in a systematic manner.

1.3 State Bank of India (SBI):

SBI is oldest and largest commercial bank of India. The origin of SBI dates back to 2nd June1806, when Bank of Kolkata was established in Kolkata. Later on, the bank of Bombay was established on15thApril 1840 and the Bank of Madras on 1st July1843. These banks amalgamated as the Imperial Bank of India (IBI)on 27th January1921.The Government of independent India decided to take over the imperial Bank of India and State Bank of India (SBI)was constituted on 1stJuly,1955.

Table1: A Brief Profile Of State Bank Of India (As On 31st March 2021)

1	Name	State Bank of India
2	Industry	Commercial Bank
3	Sector	Public Sector (State Owned)
4	Establishment Year	1st July 1955
5	Registered Office	Mumbai, Maharashtra (India)
6	Promoter	Government of India
7	Promoter's Holding (In %)	57%
8	Total No. of Branches	22,219
9	Total No. of Business correspondent Outlets	71,968
10	Total No. of ATMs	62,617
11	Total No. of Employees	0.25 Million
12	Total No. of Customers	459.2 Million
13	Paid Up Share Capital	INR 8924.6 Million
14	Total Assets	INR 45,34,4300 Million
15	Total Deposits	INR 36,81,2770.8 Million
16	Total Advances	INR 24,49,4977.9 Million

2. Literature Review:

Internet banking increases the bank profitability as measured by return on equity. Additionally, online banking enhances a bank's customer base by attracting new customers and improving the bank's service quality. The results of previous research suggest that online banking has a substantial impact on bank performance. Policymakers, regulators, legislators, bankers, and other financial services providers are paying more attention to internet banking Ngubia (2017). Widespread of information technology shows the favourable relationship between IT investments, manufacturing process reorganisations, and labour force human capital Bugamelli and Pagano (2001). Productivity and growth of the banks adopting the best practices in the industry is likely to be correlated with technical change Ferrier and Lovell, (1990), Berger, (1993), Berger, Hunter and Timme, (1993), Berger and Mester, (1997). ABC Channels establishes the positive correlation between electronic banking and deposit money bank liquidity in Nigeria Abubakar et al. (2015). Financial institutions serve as middlemen between banking services and clients, lowering the cost of acquiring financial services Barney (2011). The capacity of agency banking machines to transact quicker spreads the expenses to a merchant across a larger number of transactions, lowering costs Kent (2013). POS transactions are safer since the business owners' machines are linked to their bank accounts, allowing payments to be credited in a paperless and real-time way. They further said that the POS devices' ability to print receipts with the bank's name on them quickly authenticates the transactions and can be checked at any moment in the future Davis F.D. (2016)., The use of ABC has increased the branch productivity, per employee productivity of public sector banks and SBI at constant price Singh (1990). But employees have had certain difficulties as a result of the usage of (ATM, POS, and latest ABCs), as it necessitates constant learning to cope with technology. It has also resulted in job overload, as employees are required to deal with a variety of tasks that change on a regular basis Bik et al. (2016). Digital technology adoption will almost certainly take time to adapt workplace organisation and personnel capabilities Boskin et al., (1997). banking needs to upgrade the technology to improve operating efficiency and better customer service B. Janki (2002). SBI Group Banks must organize training and development programmes to have more efficiency and better productivity Shashi (2015).

3. Objectives:

It is necessary to determine objectives before starting any research study. There are four main objectives of this study:

- To analyse the services provided by SBI through Alternative Banking Channels.
- To measure the productivity of the employees of SBI
- To analyse the impact of alternative banking channels on employee's productivity of SBI.

4. Limitations

- This research study is based on the alternative banking channels and employees' productivity of SBI for last 10 financial years (2011-12 to 2020-21) The financial performance of the banks is shown just for the last ten years, ending 2021. Hence, any uneven trend before or beyond the set period will be the limitations of the study.
- This analysis is based on only monetary information, analysis of the non-monetary factors are ignored.
- As per the requirement of the study some data have been grouped and sub grouped.

5. Hypothesis

H1: There is no significant impact of ATM on the productivity of SBI's employees (considering Business per Employees).

H2: There is no significant impact of POS on the productivity of SBI's employees (considering Business per Employees).

6. Research Methodology

6.1 Research Period and Sample Size:

This research study is based on the alternative banking channels and its impact on employee's productivity of SBI during the period of last ten financial years from 1st April 2011 to 31st March 2021.

6.2 Data Sources:

This quantitative and analytical research study is mainly based on secondary or published data. The main source of data is the Annual Reports of SBI for last ten financial years, along with reports and publications of Reserve Bank of India.

6.3 Analytical Method and Tools:

For the Analysis or interpretation of data and testing the hypothesis it is essential to use statistical and accounting methods or research tools. The study used an ordinary least square regression (OLS) model with dependant variable being ATM and POS. So, following formulae, and tools are used in this study:

(a) Business Per Employee (BPE) $= \frac{\textit{Total Business}}{\textit{Total No.of Employees}}$

Total Business: Total Deposits + Total Advances

(b) Revenue Per Employee (RPE) $= \frac{\textit{Total Revenue}}{\textit{Total No.of Employees}}$

(c) Profit Per Employee (PPE) $= \frac{\textit{Net Profit Before Tax}}{\textit{Total No.of Employees}}$

7. SBI: Alternative Banking Channels:

In the terms of number of branches, ATMs, Business Correspondents (BCs) and number of employees, the SBI is largest commercial bank in India. It holds 23.29% market share in total deposits and 19.77% market share in total advances of Indian banking industry. It also holds 162.3 million financial inclusion accounts and facilitate total transaction value of INR 2,52,4700Million through these accounts in the financial year 2020-21. SBI is a pioneer of International Banking among all the Indian Public sector banks. At the end of the financial year 2020-21, 229 offices of SBI are functional across all Time Zones.

In the last two decades, due to an increasingly competitive and dynamic banking industry, SBI has adopted customer-driven ideas to address the swift and changing requirements of their customers. The SBI is using alternative banking channels not only to improve their own internal processes but also to increase facilities and services to their customers. The process of bank digitalization was started since 1985 in SBI. However, some private sector banks have started the same prior to the public sector banks in India. Now State Bank of India, is a market leader in providing almost of alternative banking services.

SBI has been continuously focussing on improving digital platforms to cater to the increasing ambitions of our customers. The mobile app of SBI, 'YONO' is now operational with total registered user base of 37.1 Million. Now this app has more than 10 million logins per day. With the largest network in the country, on an average, over 11.2 Million transactions per day are routed through ATMs. During the financial year 2019-20, out of the total transaction 91% are through alternative banking channels, while in 2020-21 this is increased to 93%. These alternative banking channels includes BCs outlets, ATMs/CDMs, internet banking, mobile banking, POS terminal and kiosk.

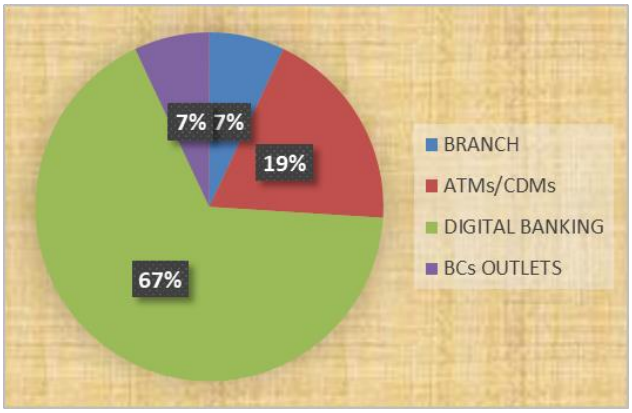

Figure 01: percentage share of alternative banking channels and branch in total transactions of SBI (for financial year 2020-21)

Source: Annual Report, SBI

At the end of the financial year 2020-21, with 7,47,205 POS terminal SBI holds 13.19% market share in this segment of alternative banking channels. In the terms of the debit cards spending, it holds 29.23% market share with more than 290 Million card holders. In order to provide basic banking facilities to the rural and semi-urban areas of

the country SBI use to appoint Business Correspondents (BCs). In the financial year 2019-20, 61,102 BCs outlets were working, but in financial year 2020-21 it's increased to 71,968. It reflects a remarkable growth of 17.78%. These BCs outlets facilitate 587.8 Million transactions under financial inclusion account.

Table 01: alternative banking channels applied by SBI (from F.Y. 2011-12 to 2020-21)

	TYPES OF ABC		CREDIT CARDS		DEBIT CARDS	
F.Y.	ATMs /CDMs	POS	Cards Outstanding (In Millions)	Monthly Transactions (In Millions)	Cards Outstanding (In Millions)	Monthly Transactions (In Millions)
2012	22141	0	2.225	3.547	90.978	179.688
2013	27175	65514	2.573	4.748	110.444	200.664
2014	43515	135853	2.858	5.778	122.223	245.676
2015	45502	200878	3.158	7.696	160.668	274.693
2016	49724	302119	3.620	10.217	189.342	338.754
2017	50188	509113	4.569	14.698	218.880	376.899
2018	59541	609789	6.258	20.370	278.468	458.702
2019	58415	575358	8.271	26.666	316.263	534.784
2020	58555	672862	10.548	31.357	278.134	275.879
2021	62617	747205	11.821	37.430	293.313	307.420
CAGR	***10.96%***	***31.05%***	***18.18%***	***26.57%***	***12.42%***	***5.52%***
% GROWTH	***182.81***	***1040.53%***	***431.27%***	***955.35%***	***222.4%***	***71.09%***

Source: Annual Reports of SBI & own computations.

Analysis:

With the reference to the above table, it is evident that in this period of ten years, SBI has an outstanding growth (CAGR of 31.05%) in the installation of POS terminal. These terminals are for providing quick and safe mode to the traders for cashless collection from their customers. The installation of new POS terminal is also increased due to the demonetization (2016) and the Covid-19 pandemic (2020). This type of growth is also visible in the case of the installation of new ATMs and CDMs. On an average per year 4,500 new ATMs/CDMs and 74,720 new POS terminals were installed by the SBI.

In order to provide credit facility and to promote cash less payments, during this period SBI has successfully issued about ten million new credit cards to their customers. On an average per year 1.066 Million new credit cards were issued by the SBI. With the help of these millions of new cards, the monthly transaction increased by almost ten times. In order to provide 24X7 cash withdrawal facility and to promote cash less payments, during this period SBI has successfully issued about 130 Million new debit cards to their customers. On an average per year 14.4 Million new debit cards were issued by the SBI. With the help of these new cards, there is a significant increase in monthly transaction.

8. SBI: Employees Productivity:

SBI is not only the backbone of our banking industry, but it is also playing a leading role in the process of social and economic welfare of the millions of the people. With the strength of 0.245Million employees, bank is working with an objective of providing fast and secure financial services to the mass population of the country.

Table 02: Employees Productivity of SBI (from F.Y.2011-12 to 2020-21)

FINANCIAL YEAR	NO. OF EMPLOYEES	BPE (In INR Million)	RPE (In INR Millions)	PPE (In INR Millions)
2012	2,15,481	88.696	5.609	0.858
2013	2,28,296	98.484	5.944	0.874
2014	2,22,809	116.882	6.952	0.732
2015	2,13,238	134.911	8.206	0.907
2016	2,07,739	153.771	9.235	0.663
2017	2,09,567	172.538	10.067	0.709
2018	2,64,041	175.777	10.040	***-0.588***
2019	2,57,252	198.143	10.809	0.062
2020	2,49,448	223.169	11.879	0.994
2021	2,45,652	249.572	12.564	1.121
CAGR	***1.32%***	***10.9%***	***8.4%***	***2.71%***
% GROWTH	***14%***	***181.38%***	***123.99%***	***30.6%***

Source: Annual Reports of SBI & own computations

Analysis:

With the reference to the above table, it is marked that in this period of ten years, there is a noteworthy growth in the productivity of employees of SBI. In the terms of Business Per Employee (BPE), a strong growth (CAGR of 10.9%) is clearly visible in SBI. BPE of SBI is increase to almost three times in this decade. On an average per year BPE is increased by INR 17.875Million, representing a healthy growth in the deposits and advances of the bank. This type of growth is also visible in the case of Revenue Per Employee (RPE). It is also showing a remarkable CAGR 8.4% and RPE is just double in this period. On an average per year RPE is increased by INR 0.773 Million, representing a positive growth in the interest and other incomes of the bank.

On other hand, the Profit Per Employee (PPE) is not up to the mark, it continuously fluctuating during this decade. In the financial year 2017-18 there was a loss and in the next year a nominal amount of PPE was also visible. The increasing Non-Performing Assets (NPAs) of the bank is the main reason of this variation. However, during the research period, the there is a nominal increase in the number of employees of the bank. It means with the nominal increase in the workforce, SBI is able to generate more business and more revenue in this decade.

The study used an ordinary least square regression (OLS) model with the dependent variable being Business per Employee (BPE) and the independent variables being ATM and POS.

Regression Model:

$$BPEt = \alpha 0 + \beta 1 ATMt + \beta 2 POSt + et$$

Table No 3 Results of Ordinary Linear Regression (OLS)

Dependent Variable: BPE				
Method: Least Squares				
Sample: 2012 2021				
Included observations: 10				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	79.74686	29.14541	2.736172	0.0291
ATM	0.000319	0.000934	0.341630	0.7427
POS	0.000173	4.71E-05	3.681290	0.0078
R-squared	0.940408	Mean dependent var		161.1943
Adjusted R-squared	0.923382	S.D. dependent var		52.97390
S.E. of regression	14.66314	Akaike info criterion		8.451875
Sum squared resid	1505.053	Schwarz criterion		8.542651
Log likelihood	-39.25938	Hannan-Quinn criter.		8.352295
F-statistic	55.23306	Durbin-Watson stat		1.116708
Prob(F-statistic)	0.000052			

With the help of regression model, an attempt has been made to analyse the impact of alternative banking channels on the productivity of SBI's employees. On the left side of the equation BPE is the dependent variable and on the right side there are multiple variables,α (alpha) is the intercept, β (beta) is the slope coefficient, the change, ATM is one of the dependent variables, POS is the other dependent variable and e represents error term, subscript t represents that the data is time series data. Results of the regression analysis highlighted that P < 0.05 (0.0078) in case of POS indicating that there is significant impact of POS on BPE on the other hand P > 0.05 (0.7427) in case of ATM indicating insignificant impact of ATM on BPE following the rule of thumb which states that if the p-value is greater than 5%, the relationship is said to be insignificant if it is lesser than 5%, it is significant.

On interpreting the results of the coefficient, it can be concluded that if ATM increases by one unit, BPE will increase by 0.000319 INR and if POS increases by one unit, BPE will increase by 0.000173 INR. The values of R-square or R-square adjusted are almost the same and tell us how much independent variables are predicting (impacting) dependent variables. In this case, the value of r square is 94.04%, so 94.04% of independent variables are predicting BPE. F statistics tell us the overall combined effect, the overall fitness of the model. Since the probability estimates of F-statistics is less than 5% (P 0.05) (0.000052), it means the model is fit.

9. Findings And Conclusion

SBI is not only the backbone of our banking industry, but it is also playing a leading role in the process of social and economic welfare of the millions of the people. With the strength of 0.245 Million employees, bank is working with an objective of providing fast and secure financial services to the mass population of the country. There was the time when once SBI was ranked low in employee's productivity but with the increased competitive and dynamic banking environment, SBI has adopted customer-driven ideas to address the swift and changing requirements of their customers. The SBI is using alternative banking channels not only to improve their own internal processes but also to increase facilities and services to their customers. The mobile app of SBI, 'YONO' is now operational with total registered user base of 37.1 Million with more than 10 million logins per day. With the largest network in the country, on an average, over 11.2 Million transactions per day are routed through ATMs. In the current scenario out of the total transactions 93% are operating through ABC only. These alternative banking channels includes BCs outlets, ATMs/CDMs, internet banking, mobile banking, POS terminal and kiosk. SBI has an outstanding growth in the installation of POS terminal. The installation of new POS terminal is also increased due to the demonetization (2016) and the Covid-19 pandemic (2020). This type of growth is also visible in the case of the installation of new ATMs and CDMs. In order to provide credit facility and to promote cash less payments, during this

period SBI has successfully issued about ten million new credit cards to their customers. With the help of these millions of new cards, the monthly transaction increased by almost ten times. In order to provide 24X7 cash withdrawal facility and to promote cash less payments, during this period SBI has successfully issued about 130 Million new debit cards to their customers. On an average per year 14.4 Million new debit cards were issued by the SBI. With the help of these new cards, there is a significant increase in monthly transaction. It can be concluded that all the ABCs has increased the productivity of employees, Business Per Employee (BPE), Revenue Per Employee (RPE) Profit Per Employee (PPE) with a sustained rate.

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The impact of Political Events and Covid-19 pandemic on Return Volatilities of 3 Sectors in the Stock Exchange of Thailand during 2019 to 2021

Samitanan Dumdoung[1], Witsaroot Pariyaprasert[2] and Nawaporn Vimolphattanatham[3]
Graduate School of Business and Advanced Technology
Assumption University, Bangkok, 10240, Thailand
Email: gypsmith1995@gmail.com, wits256@gmail.com, vnawaporn@gmail.com

Abstract

The objective of this paper is to study the impact of political events and Covid-19 pandemic on return volatilities of the sectorial stock market in Thailand. The researcher specifically used ARMA model for main equation and one EGARCH model for the volatility equation. This model is applied to the daily returns relevant to three selected sector indexes of stock exchange of Thailand from 25 March 2019 to 24 March 2021. To test the impact of political events and Covid-19 on banking, consumer product, and service sectors indexes stock market return volatility. The results show that both political events and Covid-19 pandemic have significant impact on return volatility of the selected sector indexes. However, the return volatilities of Service sector are not impact by Covid-19 pandemic. In part of political events, student's protest has impact continuously 3 days. And other political events have significant impact on second and third day after the situation. Meanwhile, all of situations have negative impact, except student's protest. Furthermore, results confirm that main three political events and Covid-19 pandemic have stronger impact on return volatility of selected sector index stock market in Thailand.

Keywords: Political events, Covid-19 pandemic, Stock market return volatility, EGARCH, Granger Causality analysis.

1. Introduction

1.1. Introduction of the study

Political events are a situation of uncertainty and unrest in the political system. Thailand has a long history of political protests since 2004, but now a new protest starting again in early 2020. Which the main cause of the protesting in Thailand is anti-government of Prime Minister Prayut Chan-o-cha by university students are leaders for call-out for major democratic reforms1. Demonstrations started in university campuses at the beginning of the year 2020 in response to a court decision to dissolve the Future Forward party. This political party was popular among young generation people and support the return of Thailand to democracy following a 2014 military coup. The protests have become an unprecedented event over recent month. In Thailand today, it was the most damaging situations to economic growth.

General elections are one of political events. It is the major role in political development of Thailand. The voters are the keys for changing in the outcome and in the composition of the government, which is the result in policy change through elections. The demonstrations by all groups of people both for and against the government could be affected economy. Many perspectives on many different things of voters also play an important role in causing political risk in Thailand. The weakness of political system is caused decline in the economic performance and less development of the countries. Moreover, instable political conditions and different political events could affect the stock market in Thailand and also affect investors' decision to invest in the stock market (Pástor & Veronesi, 2013).

It could bring the investors in part of raising capital of firm and generating earnings. Therefore, this study investigates on how much stock market will fluctuate due to different political events which can also affect the economy in both positive or negative way (Suleman, 2012).

The ongoing global, COVID-19 pandemic has created new economic and social disruption around the world including Thailand. The pandemic was initially identified in Wuhan, China in December 2019. The most impact from the Covid-19 is business and financial attitudes, which this situation made several business shutdowns and in part of financial market also has negative impact2.

As a result, investors and traders are more concerned about market situation. Moreover, the COVID-19 pandemic has continued to be a source of volatility in financial markets, for example, stock markets, exchange rate markets, and credit markets. Therefore, this crisis might