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The Critical Analysis on The Impact of Artificial Intelligence on Strategic Financial Management Using Regression Analysis

By

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Abstract

It is essential to have a solid understanding of the part that artificial intelligence (AI) plays in strategic management due to the fact that AI makes it possible to automate a large number of tasks associated with management and is increasingly used in a diverse array of strategic responsibilities. Nevertheless, due to the fact that it draws from a wide variety of disciplines, the research on the connection between AI and strategic management is disorganized and inconsistent. This page contributes to the expanding body of scholarly literature by providing a summary and classification of the extensive body of research that has been done on the subject since the first article was published in 1979. In addition to this, it provides a comprehensive framework that unifies and integrates the ideas presented in the previous sections. The framework illustrates the structure of the research field by classifying 58 relevant articles into two research scopes: condition-oriented research, which investigates the antecedents for leveraging AI in strategic management, and outcome-oriented research, which investigates the individual and organizational effects of AI in strategic management. This review proposes promising research directions for examining the quantifiable effects of the interaction between artificial intelligence (AI) and strategic management on the basis of the developed framework. Taking into consideration the exponential potential of AI to reshape the field as it stands and the need for a realistic evaluation of its impact, this review makes these recommendations.

Keywords: Strategic financial management, Artificial intelligence, Regression analysis

Introduction

The application of artificial intelligence in business settings is rapidly becoming the norm. The revolutionary technological development known as artificial intelligence (AI) makes use of algorithmic language and the learning capabilities of machines. A computer's or another device's capacity to reason and select appropriate actions in order to achieve a goal is referred to as having "artificial intelligence" (AI), which is an abbreviation for the phrase artificial intelligence.

In his article from 1955, John McCarthy described artificial intelligence as "the art and science of making machines do human-like work," which refers to activities that would typically require the intelligence of a human being to do. A subfield of artificial intelligence known as machine learning (ML) places its primary emphasis on statistical models that, when run, give analytical results. The process of economic forecasting is being significantly impacted by artificial intelligence. For example, investors in the stock market use a variety of investment

analysis and stock data mining methodologies so that they can anticipate market changes and optimize their earnings. Because of the tremendous influence that market and non-market factors have on stock prices, machine learning is essential to the "black box" model's improved capacity for market forecasting. This might improve the accuracy of financial data analysis and prediction in the same way that machine learning uses regression algorithms and time series models to construct a prediction model for the performance measure problem. Specifically, this would be similar to how machine learning would build a prediction model for the problem.

According to Paul (2019), the broad usage of the internet has made it possible for the business model of fintech companies to automate the distribution of a wide variety of financial services. Artificial intelligence (AI), machine learning, cognitive computing, and distributed ledgers are all examples of technologies that emerged during the fourth industrial revolution. These technologies can be beneficial to both established enterprises and startups operating in the financial technology industry (Lopes and Pereira 2019a). Additional artificial intelligence (AI) technologies, such as audio processing, knowledge representation, speech-to-text, deep learning, expert systems, natural language processing, robotics, machine learning (ML), and symbolic logic, can be used to advance financial inclusion in the fintech industry (Paul, 2019). This can be accomplished through the use of robotics. It is commonly believed that the investments in artificial intelligence and machine learning made by large firms such as Google, Microsoft, IBM, and Facebook were the spark that set off an explosion in the use of AI technology in the corporate world.

Some of these consumers could be worth billions of dollars, as indicated by estimations (Alameda 2020; Peric 2015). The traditional banking sector is comprised of millions of customers with long-standing banking relationships spanning decades. The fact that these customers do not have access to digital devices is now the source of the problem (Alameda 2020; Loufield et al. 2018). According to research published in 2020 by the World Bank, one of the most significant challenges facing organizations in the fintech industry is how to win the trust of customers while also preserving a holistic digital strategy. As a direct consequence of the complexities brought about by COVID-19, consumers had the ability to adopt a new perspective about fintech. During that time period, it was the only method of communication available for conducting financial and business transactions. As more and more people made purchases online from a variety of countries using a wide range of banking software, traditional banks shifted their attention to digital banking to keep up with customer demand. The success of numerous technology companies, such as Google, Apple, Facebook, and Amazon in the United States and Baidu, Alibaba, and Tencent in Asia, which boast millions of customers and billions of dollars in financial returns over decades, will encourage banks to adopt digital technology and appreciate the importance of AI in finance. This success will encourage banks to adopt digital technology and appreciate the importance of AI in finance.

Review Of Literature

Growing amounts of study on the subject of digital financial inclusion are focusing on the expanding role that mobile phones play in people's ability to participate in the financial system. Ozili (2018) contends that incorporating digital financial inclusion into attempts to bring individuals who are not already part of the official financial system into it is an essential component. Ozili (2018) was adamant in his stance that the move to digital banking stands to be beneficial for all parties involved, including customers, vendors, governments, and the economy as a whole. Ozili (2018) contends, despite this, that there are still a great deal of regulatory and other difficulties associated with digital banking that need to be resolved.

According to Dawei et al. (2018), the fact that one-third of the population does not use the formal financial system in a globalized world is contradictory given the fact that it has been demonstrated that financial services can improve the wellbeing of households and encourage the growth of small businesses. According to Dawei et al. (2018), the fundamental limits imposed by the conventional banking system act as a barrier to the opportunities available to excluded persons. According to Dawei et al.'s (2018) research, mobile technology and digital currency can assist improve access to financial services in areas of the world and the country that are now underserved. According to Dawei et al. (2018), the impracticality and inaccessibility of using low-value financial transactions is caused by the high cost of conducting such transactions.

According to the findings of Dawei et al. (2018), individuals and businesses with lower incomes can profit from the decreased costs of conducting transactions as well as the improved accessibility that digital currency and mobile technology give. According to Dawei et al. (2018), the use of digital currency and mobile transactions can both expedite the process of conducting transactions and make it possible to conduct accurate, large-scale transactions. Several nations in the developing world have turned to mobile technology in an effort to fight against the widespread problem of financial exclusion. Kenya and Zimbabwe are two of the countries in Africa that are included here, along with Brazil, India, and Nigeria.

According to Sapovadia (2018), a fundamental contrast between digital financial inclusion and traditional banking is that digital financial inclusion services customers without requiring previous data. To elaborate, digital financial inclusion makes use of data technology and artificial intelligence in order to decipher client credit assets and reduce the amount of information inequality. Because of the rise of AI and big data, potential new data points that can be utilized in credit evaluation include, but are not limited to, purchasing history, patterns of online behavior, and transaction records. These are just some of the many potential new data points that can be utilized. The Financial Cloud from Credit Ease is a good illustration of big data because it enables fast loan approval, risk monitoring, and tailored marketing to both internal and external clients.

According to Levin et al. (2018), the financial crisis that occurred in the 1960s was the impetus for the development of the technology that is used in electronic trading and financial services. As people prepare for a new era, the author argues that artificial intelligence (AI) and other technologies are going to be essential to the business world, particularly in the financial sector. Back (2018) Hotchkiss and Lee Kuo-Chuen According to Levin et al. (2018), Hotchkiss, and Lee Kuo Chuen (2018), the focus of attention in recent years has shifted away from regular citizens and the banking industry and toward fintech and blockchain technology. It is estimated by Hotchkiss and Lee Kuo Chuen (2018) that 52 million people are gaining access to the financial system in Myanmar, which is one of the countries in Southeast Asia with one of the most rapidly expanding economies.

According to Killeen and Chan (2018), the blockchain technology behind Bitcoin is pioneering the development of more reliable, intermediary-free payment systems. According to Killeen and Chan (2018), the use of blockchain technology eliminates the requirement for centralized restrictions on the utilization of a ledger in order to validate identities and record asset ownership in order to gain access to a transactional account. According to Killeen and Chan (2018), the continuous presence of conventional centralized institutions such as development banks and large-scale investment enterprises may no longer be necessary given that blockchain is more successfully achieving the functions that conventional banks previously met. The authors (Killeen & Chan, 2018) went on to claim that international

financial institutions need to react promptly to the societal changes and values adjustments that blockchain technology would surely inspire. They argued that this is necessary because blockchain technology will inevitably spawn these changes.

According to Rathi (2016), a significant number of formerly financially inactive individuals have gained access to financial services as a result of the increased accessibility and decreased cost that have been made available by digital tools. Rathi (2016) emphasized how essential it is to make use of digital technologies in order to provide banking to people who do not have access to it in developing countries like India. Because of digital technologies, people who have never had bank accounts can now participate in the mainstream financial system in a number of different ways. According to Chu (2018), digital technology is helping to facilitate financial inclusion by giving access to banking services for individuals who do not have bank accounts. These services include savings accounts, insurance, and other essential financial services for individuals who do not have bank accounts and who are in need. According to Chu (2018), it is essential to integrate the analog, digital, and mental parts of monetary transaction. He argues this point. Combining psychological tools like financial education with digital financial tools like blockchain can provide unbanked individuals with access to financial services that can assist them in breaking the cycle of poverty, as stated by Chu (2018). These services can enable unbanked individuals escape the cycle of poverty.

In their paper titled "Fintech: Harnessing Innovation for Financial Inclusion," Salampsis and Mention (2018) claim that financial inclusion has been overlooked by regulators and policymakers despite the importance of its role in empowering the underserved community. This is due to the fact that financial inclusion has been neglected by regulators and policymakers. According to Salampsis and Mention (2018), the inability of the poor to participate in formal financial markets leads to the development of disparities as well as a widespread sickness of reliance. Because of this, efforts to reduce poverty are hampered as a result. According to Salampsis and Mention (2018), a new sort of financial innovation known as fin-tech is helping to reduce the gap that exists between societies that are underbanked and those that are developed. According to Salampasis and Mention (2018), the proliferation of digital technology is resulting in an increase in the number of opportunities available in the digital economy for people to participate in.

Methodology

The researchers intend to apply the quantitative research design, the study is involved in apprehending the role of AI enable in strategic financial management in business enterprises, the authors use primary data for gathering the needed information from the respondents, these are gathered by using the closed ended questionnaire. The researcher has chosen a sample size of 162, through convenience sampling method. The secondary data is used in order to understand the previous study conducted in the similar area. The study involves in using SPSS software for making critical analysis and make interpretations from the data collected.

Research Questions

Does the application of artificial intelligence enable in better Risk detection and management which supports in strategic financial management?

Is the implementation of AI support in Effective forecasting of cash flows for enhancing strategic financial management in organisations?

Will the usage of AI tend to Support in informed decision making for augmenting strategic financial management in business enterprises?

Critical Analysis And Interpretation

This part of the study is involved in presenting the data analysis based on the information collected from the respondents, the sample population were chosen using convenience sampling method. The data is analysed used SPSS statistical package and the tools used are percentage rate analysis, regression analysis and univariate ANOVA.

Table 1: *Percentage rate analysis*

Gender	**Frequency**	**Percent**
Male	93	57.4
Female	69	42.6
Agegroups	**Frequency**	**Percent**
Less than 30 years	57	35.2
31 - 40 years	45	27.8
41 - 50 years	20	12.3
Above 50 years	40	24.7
Nature of Industry	**Frequency**	**Percent**
Manufacturing Companies	72	44.4
Service related Companies	63	38.9
Consultancy and others	27	16.7
Type of Family	**Frequency**	**Percent**
Nuclear Family	95	58.6
Joint Family	67	41.4
Level of Management	**Frequency**	**Percent**
Lower Level Management	73	45.1
Middle Level Management	40	24.7
Top Level Management	26	16
Entreprenuer / Business Owner	23	14.2
Work experience	**Frequency**	**Percent**
Less than 5 years of experience	50	30.9
5 - 10 years	38	23.5
10 - 15 years	26	16
15 - 20 years	35	21.6
Above 20 years	13	8
Total	162	100

Based on the overall analysis it is noted that 57.4% were male respondents, 35.2% were in the age group of Less than 30 years, 44.4% were working in Manufacturing Companies, 58.6% were in nuclear family , 45.1% were in Lower Level Management and 30.9% possess Less than 5 years of experience.

Regression Analysis

After understanding the composition of the demographic variables, it is vital to understand the relationship between the variables, the key variables considered for the study are: Risk detection and management, Effective forecasting of cash flows, Support in informed decision making and application of AI in strategic financial management.

Table 2: *Regression Analysis*

R	**R Square**	**Adjusted R Square**			
.900a	0.81	0.807			
ANOVA	**Sum of Squares**	**df**	**Mean Square**	**F**	**P Value**
Regression	162.664	3	54.221	224.7	.000b
Residual	38.126	158	0.241		
Total	200.79	161			
Regressions	**B**	**Std. Error**	**Beta**	**t**	**P Value**
(Constant)	0.266	0.153		1.734	0.085
Risk detection and management	0.375	0.077	0.375	4.856	0
Effective forecasting of cash flows	0.316	0.08	0.341	3.954	0
Support in informed decision making	0.223	0.068	0.23	3.308	0.001

The overall analysis shows that the value of R squared is 0.810 which shows that the model is a best fit, also the F value is at 224.7 at 5% level of significance with p value being 0.00. Hence there lies a significant relationship among the variables.

The regression equation is framed as

Y (AI in strategic financial management) = 0.266 + 0.375 x Risk detection and management + 0.316 x Effective forecasting of cash flows + 0.223 x Support in informed decision making.

Univariate Analysis of Variance

This part is involved in analysing the research question which was set by the researcher in the research methodology section, for this purpose Univariate analysis of variance is used.

Table 3: *Risk detection and management*

Dependent Variable: AI in SFM				
Risk detection and management	Mean	SD		
Strongly Disagree	2	0		
Disagree	1.71	0.47		
Neutral	3	0		
Agree	4.55	0.506		
Strongly Agree	4.66	0.475		
Total	4.09	1.117		
Tests of Between-Subjects Effects				
Dependent Variable: AI in SFM				
Source	III Sum of Sc	df	F	Sig.
Corrected Model	169.029a	4	208.883	0
Intercept	519.271	1	2566.832	0
Risk detection and management	169.029	4	208.883	0
Error	31.761	157		
Total	2906	162		
Corrected Total	200.79	161		
a R Squared = .842 (Adjusted R Squared = .838)				

From the above analysis it is noted that the total mean value is 4.09 which is nearly agree and the SD is 1.11, furthermore, the test between subjects shows the significance value of 0.00 > 0.05, hence it can be regarded that the application of artificial intelligence enable in better Risk detection and management which supports in strategic financial management.

Table 4: *Effective forecasting of cash flows*

Dependent Variable: AI in SFM				
Effective forecasting of cash flows	Mean	SD		
Strongly Disagree	2	0		
Disagree	1.58	0.515		
Neutral	3	0		
Agree	4.31	0.793		
Strongly Agree	4.64	0.483		
Total	4.09	1.117		
Tests of Between-Subjects Effects				
Dependent Variable: AI in SFM				
Source	III Sum of Sc	df	F	Sig.
Corrected Model	162.981a	4	169.194	0
Intercept	704.533	1	2925.56	0
Effective forecasting of cash flows	162.981	4	169.194	0
Error	37.809	157		
Total	2906	162		
Corrected Total	200.79	161		
a R Squared = .812 (Adjusted R Squared = .807)				

From the above analysis it is noted that the total mean value is 4.09 which is nearly agree and the SD is 1.11, furthermore, the test between subjects shows the significance value of 0.00 > 0.05, hence it can be regarded that the implementation of AI support in Effective forecasting of cash flows for enhancing strategic financial management in organisations.

Table 5: *Support in informed decision making*

Dependent Variable: AI in SFM				
Support in informed decision making	Mean	SD		
Strongly Disagree	1.38	0.518		
Disagree	2	0		
Neutral	3.24	0.436		
Agree	4.62	0.602		
Strongly Agree	4.62	0.489		
Total	4.09	1.117		
Tests of Between-Subjects Effects				
Dependent Variable: AI in SFM				
Source	III Sum of Sc	df	F	Sig.
Corrected Model	160.593a	4	156.81	0
Intercept	866.482	1	3384.281	0
Support in informed decision making	160.593	4	156.81	0
Error	40.197	157		
Total	2906	162		
Corrected Total	200.79	161		
a R Squared = .800 (Adjusted R Squared = .795)				

From the above analysis it is noted that the total mean value is 4.09 which is nearly agree and the SD is 1.11, furthermore, the test between subjects shows the significance value of 0.00 > 0.05, hence it can be regarded that the usage of AI tend to Support in informed decision making for augmenting strategic financial management in business enterprises.

Discussion

It's vital to keep in mind that although many people are concerned about artificial intelligence (AI) in the 4.0 industrial sector, AI is actually contributing significantly to the expansion of digital financial inclusion. This point needs to be driven home because it is also of the utmost significance. This is something that we absolutely cannot ignore under any circumstances. This study recommends that financial and non-financial institutions adopt and increase their usage of AI in order to make it simpler for people who haven't been able to enter the formal financial system in the past. Artificial intelligence (AI) can help make it easier for people to join the formal financial system. The findings of this research should serve to motivate all types of companies, including financial institutions, to adopt artificial intelligence (AI) and to increase their usage of the technology. People who were previously barred from participating in formal financial markets are now able to do so thanks to the application of AI technology, which boosts the chances of success associated with this endeavor.

Conclusion

The primary objective of this study was to investigate how artificial intelligence (AI) influences the accessibility of digital financial services. In the ongoing conversation about how to give people at the bottom of the economic pyramid the opportunity to participate in the economy, the issue of whether or not they can be included in digital financial systems is becoming an increasingly important factor to consider. On the other hand, organizations that specialize in financial technology are making the most of the artificial intelligence that is already available and putting it to use in a wide variety of applications in order to advance the cause of digital financial inclusion. This objective seeks to incorporate individuals with lower incomes into the conventional financial system. This includes young individuals, women, and businesses that are on the smaller side. Since it is now widely available, an increasing number of fintech companies are beginning to make use of artificial intelligence in their operations. According to the findings of the research, artificial intelligence has a significant impact on digital financial inclusion in the following ways: risk identification, measurement, and management; addressing the issue of information asymmetry; providing chatbots for customer service and helpdesk assistance; detecting fraud and ensuring cybersecurity; and providing chatbots for customer service and helpdesk assistance. Because of the widespread deployment of algorithms that automate risk detection, management, and monitoring, artificial intelligence is causing a revolution in risk-related financial inclusion. This is due to the fact that these algorithms are automating formerly manual processes. This is one of the primary reasons why artificial intelligence is making such an impact right now. That is unquestionably a significant step forward. Small businesses, such as smallholder farmers, and underrepresented populations, such as women and young people, profit from this since they are able to acquire access to financial services. Smallholder farmers are one example of this. Historically, these types of companies were not permitted to participate in the official financial market that is often catered to by conventional banking institutions because of the high perceived risk that is associated with them. When AI is used for digital financial inclusion, one of the benefits is that it opens the door to a multitude of online shopping portals and social networks, all of which store a significant quantity of information about individuals. As a consequence of this, a greater

number of people will have the opportunity to obtain access to financial services as the issue of information inequality between clients and banks is resolved. These are only some of the ways that artificial intelligence (AI) has an impact on the accessibility of digital financial services.

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