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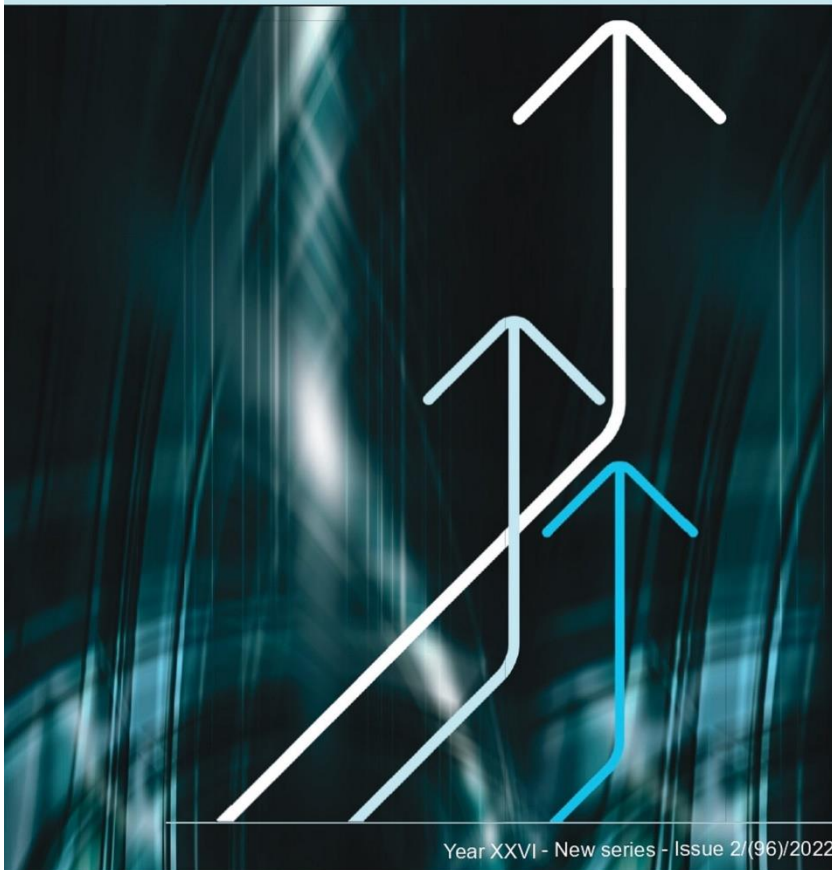
FINANCIAL STUDIES

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Contents

ENTREPRENEURIAL FIRMS AND FINANCING CHANNELS: INTERDEPENDENCE ELEMENTS

Tudor CIUMARA, PhD [*]

Abstract

In this paper we propose a novel perspective regarding the interdependence of certain elements, crucial in providing financial resources to entrepreneurial firms, using a variety of different financing channels. We use a theoretical approach to define a set of layers that can be used to determine the relevance of certain financing types, for companies with certain characteristics. These layers are represented by company development stage, field of activity, size, use of financing resources, orientation for long- or short-term financing, complexity of legal and administrative procedures and refundable or non-refundable nature of the financing. We discuss the perspectives of this analysis model for future empirical analyses that may contribute to its improvement.

Keywords: funding, companies, financial resources

JEL Classification: D25; G32; L26

1. Introduction

Company finance is a topic of great interest for several reasons. Perhaps, most important of all, we can see that the financial field is generally of particular interest, being easier to perceive by a variety of interested parties. In this paper we explore a segment of company finance, represented by entrepreneurial finance, with the purpose of exploring the manner in which some important factors connect with each other in the process of obtaining financial resources for the company.

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2. Literature review

The notion of entrepreneurship is elastic (Eisenmann, 2013) and, while everyone has a representation of what it means, the common understanding is rather vague. A common definition of entrepreneurial companies is that they are built on a suite of entrepreneurial processes that generate a specific dynamic. Studies such as Muzyka, De Koning and Churchill (1995) and Mason (2006) can be reviewed in this regard. An essential aspect is the fact that "the entrepreneurial firm is based on opportunities, not on resources" (Karami, 2007).

As Scherr et al. (1993) note, research in the field of corporate finance is much more abundant in terms of large firms and less common in terms of the financial structure of start-ups. Therefore, the differences between corporate finance and entrepreneurial finance must be taken into account (Vinturella and Erickson, 2004) in such an analysis.

The literature on financing entrepreneurial firms is largely focused on start-ups. In addition to the attention paid to traditional financing methods (such as banking or the capital market), in recent decades a line of research has begun to develop, dedicated to financing through alternative channels (venture capital funds, business angel investors, self-financing etc). It is noticeable that the landscape of financing offered to entrepreneurial firms is increasingly complex (Bessiere et al., 2019).

Scher et. al (1993) find that the determinants of the financial structure of small firms are the preferences regarding the risk-return ratio of the owner, the costs related to financing and the characteristics of the firm (such as the field of activity or the structure of assets). In essence, the structure of financing attracted by entrepreneurial firms results from the interaction between the preferences of entrepreneurs for certain types of financing and the willingness of financing providers to respond to these preferences (Huyghebaert, & Van de Gucht, 2007).

We may observe that many companies seem doomed to be financed mainly by loans, since they are not attractive enough to investors, because they do not have the potential to grow rapidly and substantially, either because of the characteristics of the market in which they operate or because of the characteristics of the way they are run (McNaughton and Bell, 2004). Given that lending is the main financing channel for entrepreneurial firms, it can be concluded that it

is very important for the banking system to function efficiently (Balling et al., 2009). We note the conclusion of Balling et al. (2009), according to which risk capital can be a buffer for cyclical fluctuations in the economy, helping firms to have a more robust balance sheet and better cope with economic fluctuations. We also need to consider the possibility of a substitution effect between state subsidies and venture capital financing (Pukthuanthong et al., 2007).

Simplifying the analysis, companies can be financed through three major channels: loan, activity-generated resources and sale of shares. The theory of the irrelevance of the financial structure of Modigliani and Miller (1958) is notable, but the hypotheses on which it is based complicate the translation of the conclusions to the real environment.

3. Methodology

We seek a theoretical development of financing conditions for entrepreneurial companies, to provide a model of analyzing the financing perspectives of such companies. In order to achieve this, we look at how financing options are conditioned by different relevant elements in the entrepreneurial ecosystem, and how they influence them, in turn. Subsequently, we also observe the complementarity of different sources of funding. In order to be able to rank the different options, we use a basic scale, with the following notations: 0 = Inadequate, 1 = Inadequate, 2 = Adequate, 3 = Very adequate. It should be noted that the notations from 0 to 3, awarded in the analysis, are used purely for model presentation, and may/need to be adjusted on the basis of more detailed, empirical assessments. We appreciate that in this paper it is mainly useful to introduce this perspective of analyzing the sources of financing and their relationship with the characteristics of entrepreneurial firms and not so much their precise classification, based on rigorously determined markings.

The aspects that we analyze in this framework are the following:

a) Company development stage;
b) Company field of activity;
c) Financing use;
d) Company size;
e) Orientation of the use of long- or short-term financing;

f) Complexity of legal and administrative procedures necessary to obtain and manage the financing;

g) Refundable or non-refundable nature of the financing.

These aspects are critical in the process of determining the financial requirements of an entrepreneurial companies and the proper management of such financial resources.

4. Discussion

The development stage of the company is a very important aspect, given the fact that at different stages of the company's life the optimal sources of financing may be different. We need to look at the decisions and the possibilities of financing the activity and development of the entrepreneurial companies through the prism of their positioning within the life cycle. Life-cycle based company financing options are being examined by many researchers, including La Rocca et al (2011) and Leach and Melicher (2012). While the former argue that as firms mature, they balance their financial solutions by reducing indebtedness and increasing capital-based financing, the other authors take a more general approach, noting that "each stage in the life cycle requires a specific understanding of the financial management tools and techniques, potential investors and their mindset, and the financial institutions supporting that venture stage". The issue of options for financial structure based on life cycle positioning is also addressed by Fluck (2000) who investigates whether a firm's subsequent financing decisions are affected by the results of previous decisions. Related to this aspect, we can also analyze the age of the business - newly established companies, without a history, find it more difficult to access bank financing, for example. When it comes to financing entrepreneurial companies, the focus is largely on newly established companies or even those still in the concept stage.

The structure we propose in Table 1 indicates that certain types of financing are better suited for certain company life stages. We could hardly imagine crowdfunding as a relevant financing source for a mature company or sale of equity for a business in the concept stage. Some sources of financing, such as grants. are more adaptable and relevant for most stages in the company life-cycle. While the value of this perspective is not obvious from just this element, it becomes more powerful when we introduce additional dimensions in the analysis.

The field of activity in which the companies operate or intend to operate is another crucial element. Companies in different sectors have different business models that also involve a different set of elements in the process of financial decision. Financiers may also have preferences in this regard or may even specialize in certain areas of activity. It is certain, and clearly highlighted both in the literature and in empirical analysis, the preference for funding businesses that can be defined as innovative and scalable. For this reason, we have introduced in Table 2 a column that defines, perhaps somehow improperly, a field of activity named *Innovative*, although in this category one can find companies from the entire spectrum of fields of activity. We may determine that most types of financing are equally well adjusted for all or most fields of activity, and we made consequent notation in the table. However, certain types of financing – public grants, for example – may be more sensitive to this element.

The use of financing is another relevant element. It should be taken into account the preference of most financiers for the existence of guarantee for the funds made available to the company, or for the existence of significant growth prospects. Therefore, in Table 3 we provide a set of assumptions regarding the relationship between certain sources of financing and the use of funds. While bank loans can be used to finance a large spectrum of needs, leasing (any many other types of financing) is not relevant for paying off outstanding financial obligations.

The size of the financed company is also particularly relevant, both regarding the amount of funding required and also the possibilities the financier has to control the results. A more detailed analysis of these issues was recently conducted by Masiak et al. (2018), highlighting the greater preference of micro-enterprises for internal financing and shorter-term financing. What we note in Table 4 is that a very small company, for example, can benefit little from equity sale, for obvious reasons, this may be a very relevant source of financing for a larger company. In a reverse perspective, microfinancing may be very relevant for a small company and irrelevant for a larger one.

Short, medium or long-term guidance on the use of funding is another factor that filters out possible funding channels that can be used. From this point of view, the basic elements of the need for financing of the companies, as well as the preferences, characteristics or specialization of the financing channels are also relevant. Therefore, we propose in Table 5 that sale of equity is not a relevant source of

financing short term needs, while microfinancing is not relevant for longer term needs.

Another important aspect concerns the administrative procedures for obtaining financial resources from different sources. Regarding the complexity of legal and administrative procedures, presented in Table 6, we preferred not to use the scoring system from 0 to 3 but to mark the degree of complexity associated with each type of financing, simply marking the most likely level of complexity for each type of financing. One possibility to refine this element of analysis would be to track the costs associated with financing. These costs can be both financial and interpreted in the resource consumption note (mainly time). These elements of the analysis compound nicely with perspectives of other elements, such as the time horizon, since more complex procedures most often require more time, making the corresponding financing types less relevant for needs with shorter time horizon.

An essential issue associated with the financing of companies is whether or not the money raised should be returned to the financier. Hence the reimbursable versus non-reimbursable nature of the financing, highlighted in Table 7.

The evaluation of the elements presented so far, and how they impact each other, outlines a number of interesting features regarding the context in which the financing of entrepreneurial firms is carried out. Another aspect that deserves to be noted refers to the way in which the different financing channels are complementary with each other. In Table 8 we propose a perspective on this aspect. We find again that some types of financing are very malleable, complementing harmoniously most other types of financing, while others tend to be less predisposed to complementarity.

We view these elements as layers of a more complete analysis of the relationship between entrepreneurial firms' financial needs and the available types of financial sources. Adding layer upon layer of interdependent elements may significantly improve the understanding of this area.

A number of other factors may be relevant to expand the perspective presented in this paper. Such factors may influence, to a greater or lesser extent, both the companies' choices for the different financing channels and the evaluation of the financiers regarding the opportunity to grant the requested financial resources. Among these

elements we can think of the orientation towards import and/or export activities of the companies, their location (here both urban versus rural and regional differences can be discussed). Also, the innovative character of the company's activity is a strong influencing factor of the financial structure. These are elements that could be used to further refine the proposed perspective on entrepreneurial companies financing.

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Table 1

The relationship between the type of financing and the development stage of the company

	Business idea	Start-up	Growing company	Mature company (stagnation)	Declining company
Sale of equity	0	0	3	3	1
Sale of assets	0	0	2	3	3
Retained	0	3	3	3	1
Bank loans	0	1	3	3	1
Trade credit	0	3	3	3	2
Leasing	0	2	3	3	1
Microfinancing	0	1	1	1	2
Other loans	3	3	2	1	3
Grants	1	3	3	3	1
Business angels	2	3	3	1	0
Risk finance	1	3	3	0	0
Crowdfunding	3	3	0	0	0

Data source: author's analysis

Table 2

The relationship between the type of financing and the field of activity of the company

	Industry	Trade	Services	Construction	Innovative
Sale of equity	3	3	3	3	3
Sale of assets	3	2	2	3	2
Retained earnings	3	3	3	3	3
Bank loans	3	3	3	3	3
Trade credit	3	3	3	3	3
Leasing	3	3	3	3	3
Microfinancing	3	3	3	3	3
Other loans	3	3	3	3	3
Grants	3	2	2	1	3
Business angels	3	2	3	2	3
Risk finance	3	2	3	2	3
Crowdfunding	3	2	3	1	3

Data source: author's analysis

Table 3

The relationship between the type of financing and its use

	Investment	Inventory/ working capital	Hiring and training of personnel	Development/la unch of new products/ services	Refinance or pay off obligations
Sale of equity	3	3	1	3	1
Sale of assets	3	3	3	3	3
Retained earnings	3	3	3	3	3
Bank loans	3	3	3	3	3
Trade credit	2	3	1	1	0
Leasing	3	0	0	0	0
Microfinancing	1	2	3	1	3
Other loans	3	3	3	3	3
Grants	3	1	2	3	0
Business angels	3	3	2	3	0
Risk finance	3	3	2	3	0
Crowdfunding	3	2	2	3	0

Data source: author's analysis

Table 4

The relationship between the type of financing and its size

	Very small company	Small company	Medium sized company	Large company	Very large company
Sale of equity	0	1	2	3	3
Sale of assets	3	3	3	3	3
Retained earnings	3	3	3	3	3
Bank loans	1	2	3	3	3
Trade credit	1	2	3	3	3
Leasing	1	3	3	3	3
Microfinancing	3	2	1	0	0
Other loans	3	3	3	3	3
Grants	3	3	2	2	2
Business angels	3	3	2	0	0
Risk finance	0	2	3	0	0
Crowdfunding	3	2	0	0	0

Data source: author's analysis

Table 5

The relationship between the type of financing and the time horizon

	Short term	Medium term	Long term
Sale of equity	0	3	2
Sale of assets	3	2	1
Retained earnings	1	3	3
Bank loans	3	3	3
Trade credit	3	2	0
Leasing	1	3	3

	Short term	Medium term	Long term
Microfinancing	3	0	0
Other loans	3	2	2
Grants	1	3	3
Business angels	2	3	2
Risk finance	1	3	2
Crowdfunding	3	2	0

Data source: author's analysis

Table 6

The relationship between the type of financing and the complexity of legal and administrative procedures

	Reduced complexity	Average complexity	High complexity
Sale of equity			X
Sale of assets	X		
Retained earnings	X		
Bank loans		X	
Trade credit	X		
Leasing		X	
Microfinancing	X		
Other loans	X		
Grants			X
Business angels		X	
Risk finance			X
Crowdfunding	X		

Data source: author's analysis

Table 7

The relationship between the type of financing and their repayable nature

	Refundable	Non-refundable
Sale of equity		X
Sale of assets		X
Retained earnings		X
Bank loans	X	
Trade credit	X	
Leasing	X	
Microfinancing	X	
Other loans	X	
Grants		X
Business angels		X
Risk finance		X
Crowdfunding		X

Data source: author's analysis

Table 8

Complementarity between different types of financing

Financing types	Sale of equity	Sale of assets	Retained earnings	Bank loan	Trade credit	Leasing	Microfinancing	Other loans	Grants	Business angels	Risk finance	Crowdfunding
Sale of equity	0	1	2	2	3	3	0	1	3	0	1	0
Sale of assets	1	3	3	2	3	3	2	3	3	1	1	1
Retained	2	3	3	3	3	3	3	3	3	3	3	1
Bank loans	2	2	3	3	3	3	2	3	3	2	2	1
Trade credit	3	3	3	3	3	3	3	3	3	3	3	3
Leasing	3	3	3	3	3	3	3	3	3	3	3	3
Microfinancing	0	2	3	2	3	3	2	3	3	3	3	3
Other loans	1	3	3	3	3	3	3	3	3	3	3	3
Grants	3	3	3	3	3	3	3	3	2	2	2	2
Business angels	0	1	3	2	3	3	3	3	2	3	3	1
Risk finance	1	1	3	2	3	3	3	3	2	3	3	1
Crowdfunding	0	1	1	1	3	3	3	3	2	1	1	1

Data source: author's analysis

IMPACT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF MACEDONIAN INDUSTRIAL COMPANIES

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Abstract

Efficient and effective working capital management is crucial given its impact on the company's profitability. The focus of the research in this paper is the impact of individual components of working capital on the profitability of industrial companies. The research was conducted on a sample of industrial companies listed on the Macedonian Stock Exchange using their accounting data for a period covering ten years 2010 - 2019 by applying a panel regression analysis. We found that corporate profitability increases with increasing account receivable period, account payables payment period, company size, sales growth, and volatility in net operating profit. Additionally, profitability increases with decreasing in the cash conversion cycle and financial leverage. Inventories conversion period and fixed financial assets do not show a statistically significant relationship with the company profitability.

Keywords: corporate finance, operating cycle, cash cycle, panel data analysis, North Macedonia

JEL Classification: G31; G32; E32

1. Introduction

Working capital management (WCM), which covers the management of current assets and current liabilities, is a very important area in corporate finance because it has a direct impact on

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the liquidity and profitability of the company. The current assets of a typical manufacturing company or even a trading company make up more than half of the total assets of the company. In the case of our analyzed sample, the average is 43%, and in some companies, it reaches up to 89%. Excessive levels of current assets can easily result in low return on investment. Also, companies that have too few current assets can jeopardize normal operating operations.

Profitability affects the achieved rate of return on investment. Vishnani and Shah (2007) state that large investments in current assets reduce the rate of return. The purpose of working capital management is to manage the current assets of the company in a way that will allow achieving a balance between return and risk (Ricci and Vito, 2000). Shin and Soenen (1998) state that effective working capital management is an integral component of the overall corporate strategy aimed at creating additional value for shareholders.

The different components of working capital management are the following: 1) account receivables period, which we take as a representative of the debt collection policy; 2) inventories conversion period, which is the representative of the inventory management policy; 3) account payables payment period, which we take as a representative for the supplier management policy. The connection between the three components can be represented in Figure 1.

Effective working capital management means planning and controlling current assets and current liabilities in a way that will eliminate the risk of the inability of the company to meet due short-term liabilities, and on the other hand avoid investing in excess current level of current assets (Eljelly, 2004). Managers spend significant time on day-to-day problems involving working capital decisions (Raheman and Nasr, 2007). One reason for this is that current assets are short-lived investments that are continuously converted into other types of assets (Rao, 1989). The company is responsible for the timely settlement of current liabilities. Taken together, decisions about the level of the various components of working capital become frequent, repetitive, and time-consuming (Appuhami, 2008).

Working capital management is a very sensitive area in financial management. It includes decisions at the level and composition of current assets and how they are financed. Current assets include all those assets that in the normal course of business activities are converted into cash in a short period, usually up to one year, as well as those temporary investments that can be immediately

converted into cash if necessary. Among others, Smith (1980), Raheman and Nasr (2007) show that working capital management is important because of its effects on company profitability and risk, and consequently, on company value.

Figure 1

Operating cycle and cash conversion cycle
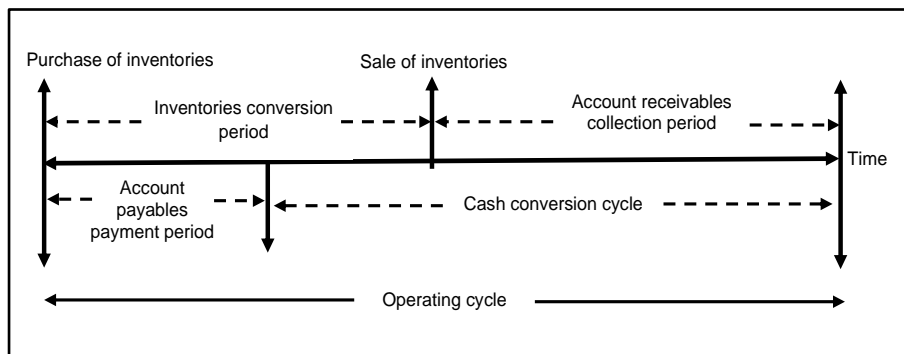
Source: Adapted from Ross, Westerfield, and Jordan (2022)

The way working capital is managed can have a significant impact on a company's liquidity and profitability (Deloof, 2003). For example, decisions that tend to maximize profitability tend to minimize the prospect of adequate liquidity. Conversely, a full focus on liquidity tends to reduce a firm's potential profitability. The traditional view of the relationship between a company's cash conversion cycle and profitability is that, while everything else is unchanged, a longer cash conversion cycle adversely affects profitability (Deloof, 2003; Smith, 1980). This paper aims to investigate the impact of the components of working capital management on the profitability of companies listed on the Macedonian Stock Exchange.

2. Literature review

There are many papers and studies on this topic, which have been made over the years. Most of them focus on the components of working capital, primarily in terms of their impact on the profitability of the surveyed company or companies in the sample. Given that this is a very broad and important topic in terms of corporate finances, up to the level of the national economy, the topic of working capital management will be addressed in the future by many other authors, and the results will contribute to maximizing the value of the company.

In his work, The Wealth of Nations, Adam Smith (1776) emphasized the importance of working capital, where he made a clear distinction between "circulating capital" and "fixed capital". His definition of "circulating capital" was like today's understanding of working capital.

Mills (1996) found a relevant relationship between the determinants of external factors and working capital. He studied the impact of inflation on the budgeting process. He found that the impact of inflation is greater if the amount of net working capital is higher. Inflation has an impact on the behavior of the company, with inflation forcing companies to try to reduce the level of net working capital, changing their debt/asset ratio using more short-term debt, and increasing short-term loans compared to long-term loans.

Research linking WCM to external factors is less dominant. Most of the research so far is more focused on the impact of internal determinants of net working capital on companies' performance (Kieschnick et al., 2006; Chiou et al., 2006).

Padachi (2006) found that high investment in inventories and receivables is associated with lower profitability. In his research, he used the return on total assets as a measure of profitability and the relation between working capital management and corporate profitability is investigated for a sample of 58 small manufacturing firms, using panel data analysis for the 1998-2003 period.

Vishnani and Shah (2007) investigated the impact of working capital management policies on the corporate performance of the Indian consumer electronics industry case from 1994–95 to 2004–05. They found that working capital components play a significant role in corporate profitability. To this end, the managers concerned should pay due attention to the formulation of the policy in this regard, as well as to the implementation of such working capital policies. The corporate value increases when the return on equity (ROE) exceeds the cost of capital. Working capital management is equally important for large and small companies, but is especially important for small company managers.

The research of Raheman and Nasr (2007) and Naser et al. (2013) emphasize the importance of efficient working capital management in creating value for shareholders. In developing countries, the call to start with optimal working capital management practices is becoming increasingly pronounced, so the study on the impact of working capital on profitability in companies in Ghana in the

2005-2009 period shows some of the practices for WCM. Namely, according to this research, there is a need to reduce the account receivables period from customers to about 30 days. This paper identifies a positive relationship between the cash conversion cycle and the profitability of the surveyed companies in Ghana. The short period of cash conversion cycle is ideal for increasing its profitability, but also for creating shareholders' value.

Gill et al. (2010) made an investigation on a sample of 88 American firms listed on the New York Stock Exchange for a period of 3 years from 2005 to 2007 and found a statistically significant relationship between the cash conversion cycle and profitability, measured through gross operating profit.

Afza and Nazir (2008) in the case of Pakistani firms found significant differences in their working capital investment and financing policies across different industries. The aggressive investment working capital policies are accompanied by aggressive working capital financing policies. Also, they found a negative relationship between the profitability measures of firms and the degree of aggressiveness of working capital investment and financing policies. Abbadi and Abbadi (2013) in the case of the Palestinian companies found that the cash conversion cycle, return on assets, and operating cash flow are a significant determinant and positively related to the working capital requirements, while leverage and firm size are significant but negatively related to the working capital requirements. On the other hand, economic variables such as the interest rate and real GDP growth rate have no significant impact on the working capital.

Almazari (2013) found that the Saudi cement industry's current ratio is the most important liquidity measure which effected profitability, therefore, the cement firms must set a trade-off between these two objectives so that, neither the liquidity nor profitability suffers. It was also found, that as the size of a firm increases, profitability increases. In addition, when debt financing increased, profitability declined.

Tauringana and Afrifa (2013) investigated the effect of working capital management on the performance of listed small and medium enterprises by applying a panel data regression analysis on a sample of 141 Alternative Investment Market listed SMEs for eight years (2007–2014). The results show that for all SMEs, WCM components (inventory holding period, accounts receivable period, and accounts payable period) have concave relationships with performance. However, when the SMEs are split into 'small' and 'medium' firms, the

results suggest that WCM is relatively more important to the performance of 'small' firms than 'medium' firms. Previously, Garcia-Teruel and Martinez-Solano (2007) made an investigation on SMEs, and conclude that managers can create value by reducing their inventories and the number of days for which their accounts are outstanding. Moreover, shortening the cash conversion cycle also improves the firm's profitability

Preve and Sarria-Allende (2010) summarize two approaches that define working capital. The first approach they call the "traditional definition of working capital" is that "working capital shows how much money (or liquid assets) is available to meet the short-term cash needs imposed by current liabilities." The other approach does not include short-term components and is defined as "working capital is the amount of capital committed to financing a firm's current assets". In this approach, the definition of working capital has no short-term components, but by incorporating strategic elements such as capital and fixed assets, they were intended to be linked to other alternative meanings and applications for working capital management.

Zariyawati et al. (2010) explain that the determinants of working capital are divided into internal and external. The internal factor is focused on solid features and specific factors while the external factor consists of macroeconomic factors. Effective working capital management should pay attention to internal and external factors, or both.

Makori and Jagongo (2013) investigating the impact of the WCM on the profitability of manufacturing and construction companies in Kenya, concluded that most Kenyan manufacturing companies have large amounts of cash invested in working capital. It can therefore be expected that the way working capital is managed will have a significant impact on the profitability of those firms. The study found that there was a negative relationship between ROA and the average account receivables collection period and cash conversion cycle. There is a positive correlation between the inventories conversion period and the account payables payment period. These results suggest that managers can create value for their shareholders by reducing the account receivable collection period and increasing the account payables payment period, as well as an inventories conversion period to a reasonable time.

Using more recent studies on this issue, Syeda (2021) conducted a random analysis of a sample of 15 listed companies on

the New York Stock Exchange, for a period of five years from 2015 to 2019. He found that there is a strong link between working capital management and corporate profitability. This means that if financial managers pay attention to liquidity it will lead to profitability. It is recommended that companies always maintain a sound debt collection policy and it is further suggested that managers be able to create value for their shareholders by reducing the account receivables collection period, increasing the account payables payment period and inventory period to a reasonable minimum. Also, the results of the analysis showed that companies can further strengthen their results if they manage their working capital in more efficient ways. Working capital management means managing current assets and current liabilities. If these companies effectively manage the cash, receivables, liabilities, and inventories, this will ultimately increase the profitability of these companies.

Mache and Omodero (2021) conducted a study, on the case of selected companies that produce consumer goods in Nigeria. They found that working capital management strategies have a significant impact on the financial performance of retailers. Thus, it can be concluded that the financial performance of South African retailers is a result of their working capital management components. South African companies can improve their financial performance by optimizing their working capital components, such as account receivables period, inventories conversion period, and account payables payment period, as much as possible without risking losing customers or suppliers.

3. Data and measurement

3.1 Data

The data for this research refer to companies listed on the Macedonian Stock Exchange for the 2010-2019 period. Data are collected from publicly available audited financial statements. Relying exclusively on listed companies is due to the greater reliability and accuracy of the data given that these companies have special reporting obligations, by the rules and conditions of the stock exchange. The sample of companies is from the domain of industry. According to Deloof (2003), all financial institutions, such as banks and other financial institutions, insurance, but also some commercial and service companies, as well as some other non-manufacturing companies are excluded from the analysis. The reason for their exclusion from the

analysis is their definition of working capital (Lazaridis and Tryfonidis, 2006). According to the criteria, the sample consists of 63 companies. Several filters were applied to refine the data. First, all those companies that have operating anomalies over the years, such as companies that have negative total assets, negative capital, and negative operating cycle, were removed from the analysis.

3.2 Measuring profitability

Different researchers use different measures of profitability. In this research, profitability is defined following Deloof (2003) as Gross Operating Profit Ratio, which we calculated as:

$$Gross\ Operating\ Profit\ Ratio = \frac{Sales\ Revenue - Cost\ of\ Goods\ Sold + Depreciation\ and\ Amortization}{Total\ Assets - Financial\ Assets}$$

3.3 Exogenous variables

Table 1

Exogenous variables measurement

	Measurement
Independent variables	
Account receivables collection period	Account receivables net / Sales revenues x 365
Inventories conversion period	Inventories / Cost of goods sold x 365
Account payables payment period	Account payables / Purchases x 365
Cash conversion cycle	Account receivables collection period + Inventories conversion period – Account payables payment period
Control variables	
Company size	*ln* (Sales)
Sales revenue growth	$(Sales_t – Sales_{t-1}) / Sales_{t-1}$.
Financial leverage	(Short term loans + Long term loans) / Total assets
Fix financial assets	Fix financial assets / Total assets
Volatility of net operating profit	Standard deviation of the net operating profit in the analyzed 2010–2019 period

Source: Authors' presentation

4. Results of the analysis

4.1 Summary statistics

The average Gross Operating Profit Ratio for the 10 years of the selected companies in the sample is 23% and a median of 22%. Most of the companies in the sample were continuously profitable. The average account receivable collection period was 101.1 days on average, and the maximum of 1,620.50 days was realized by only one company. If we ignore it in this case and observe the other companies, we can notice that there is a relatively high correlation between the account receivable collection period and the account payables payment period.

The average account payables payment period is 151.4 days. Again, the extreme of the maximum of 4,419.1 days applies to the same company, which is to be expected given the rather long account receivables collection period.

Table 2

Descriptive statistics

	Mean	Median	Maximum	Minimum	Standard deviation
Gross operating profit	0.23	0.22	1.04	-0.86	0.22
Account receivables period	101.1	76.8	1.620.5	2.8	162.0
Inventories period	225.1	101.8	4.264.6	5.7	432.0
Account payables payment period	151.4	98.2	4.419.1	5.4	422.3
Cash conversion cycle	174.8	131.3	3.875.0	-2.311.8	457.8
Company size	21.2	20.93	24.31	17.85	1.29
Sales growth	0.16	0.02	16.04	-0.96	1.56
Financial leverage	0.33	0.33	0.93	0.00	0.24
Fixed financial assets	0.02	0.01	0.32	-0.13	0.06
Volatility in net operating profit	0.10	0.04	0.64	0.01	0.15

Source: Authors' own calculations

The inventories conversion period covers the period from the purchase of the stock of raw materials to the moment of the sale of the stock of finished products and their exit from the company, and on average it is 225.13 days. The cash conversion cycle averages 174.85 days, resulting from the previous three variables. In the control variables, the size of companies presented as a natural logarithm of

sales revenue has an average value of 21.23, while the average growth of sales revenue is 16% per year. If we make a comparison with the average GDP growth which is 4.9%, then it indicates that the manufacturing companies in the sample have achieved much higher growth than the economy as a whole. The sample companies are not very indebted. Total debt (short-term plus long-term) is 33% of total assets. The fixed financial assets indicator shows that the share of fixed assets in total assets is on average 2%. The volatility of the net operating profit is 10%.

The companies from the analysed sample have ineffective working capital management, which ultimately contributes to moderate growth of companies and relatively low profitability. The companies on average have a very long account receivables period, which could have an economically logical justification only if the companies liberalized their credit policies to increase the credit sales, but in the case of the analysed companies, this period is long due to low current liquidity and the difficulty for timely collection of receivables, negatively impacting the profitability. Companies also show inefficient inventory management, measured by inventories period which is very long. Holding large volume of inventory may be justified to ensure growth in production and sales, but too much inventory leads to increased holding costs and other related operating costs, leading to reduced profitability. What's more, the long inventory conversion period may be due to the storage of outdated stocks. The operating cycle, which is the sum of account receivables period and inventory period, is quite long and amounts to 326.2 days. The long operating cycle affects companies to have lower turnover and lower profitability (according to the DuPont formula). As a result, the cash cycle, which is the difference between the operating cycle and the account payables period, is long and amounts to 174.8 days. It is actually the period from the moment of payment for purchases to the moment of collection of receivables. It is actually the period in which the company uses money to finance business operations from certain sources, which leads to costs for that financing and additionally has a negative impact on profitability. All elements of the working capital are not efficiently managed and all of them individually do not have a satisfactory impact on growth and profitability, although account payables period is longer than account receivables period. Corporate managers need to redesign their operating policies and improve working capital management practices to ensure greater profitability and greater corporate growth.

4.2 Correlation analysis

The correlation analysis, as the second segment of this research, consists of determining whether there is a correlation between the variations of the observed phenomena and if so, to what degree or intensity. Table 3 in the Appendix shows the Prison correlation coefficients between the observed variables. From the results obtained in the correlation analysis, we can see that there is a very low negative correlation between gross operating profit and part of the components of working capital, i.e., account receivables period, account payables period, but also to some of the control variables, such as financial leverage, fix financial assets and the volatility of net operating profit. The results of the correlation analysis are completely consistent with those obtained by Deloof (2003) in the case of Belgian companies.

4.3 Regression analysis

In further research, we will apply panel regression analysis. To determine which model is most appropriate for the analysis (pooled regression model, fixed effect model, or random effect model), it is necessary to perform a Hausman test. The test assesses the consistency of the assessor when compared to an alternative, less efficient assessor already known to be consistent. It helps to assess whether the statistical model corresponds to the data. The basis of the Hausman test consists of starting from the linear model y = Xb + e, where y is the dependent variable and X is the regressor vector, b is a vector of coefficients and e is a random error. Here are both estimators for b: b_0 и b_1 . The two hypotheses are:

H0: Random effect model is appropriate

H1: Fixed effect model is appropriate

According to the results obtained from the Hausman test, we accept the null hypothesis, i.e., the fixed effect model is appropriate and accepted for further research.

The next step is to examine which variables are statistically significant and how they affect a company's profitability. For that purpose, we will set up several models that will represent a different combination of independent variables and will show us which of them is and which is not, statistically significant for the profitability of the examined companies. To answer the question of how working capital management affects the company's profitability, gross operating profit

is shown as a function of the three basic measures of working capital management in addition to other characteristics of the company.

In the analysis itself, five fixed-effect regression models were modelled, as follows:

GOP = f {ARCP, ICP, APP, CCC, Size, Rev.increase, LEV, FXA, VAR}

Model 1

$$GOP_{it} = \alpha_0 + \beta_1 ARCP_{it} + \beta_2 Size_{it} + \beta_3 Rev.Increase_{it} + \beta_4 LEV_{it} + \beta_5 FIX_{it} \quad (1)$$
$$+ \beta_6 VAR_{it}$$

Model 2

$$GOP_{it} = \alpha_0 + \beta_1 ICP_{it} + \beta_2 Size_{it} + \beta_3 Rev.Increase_{it} + \beta_4 LEV_{it} + \beta_5 FIX_{it} \quad (2)$$
$$+ \beta_6 VAR_{it}$$

Model 3

$$GOP_{it} = \alpha_0 + \beta_1 APP_{it} + \beta_2 Size_{it} + \beta_3 Rev.Increase_{it} + \beta_4 LEV_{it} + \beta_5 FIX_{it} \quad (3)$$
$$+ \beta_6 VAR_{it}$$

Model 4

$$GOP_{it} = \alpha_0 + \beta_1 CCC_{it} + \beta_2 Size_{it} + \beta_3 Rev.Increase_{it} + \beta_4 LEV_{it} + \beta_5 FIX_{it} \quad (4)$$
$$+ \beta_6 VAR_{it}$$

Model 5

$$GOP_{it} = \alpha_0 + \beta_1 ARCP_{it} + \beta_2 ICP_{it} + \beta_3 APP_{it} + \beta_2 Size_{it} + \beta_3 Rev.Increase_{it} \quad (5)$$
$$+ \beta_4 LEV_{it} + \beta_5 FIX_{it} + \beta_6 VAR_{it}$$

where GOP e Gross operating profit ratio, ARCP is account receivables collection period, ICP is inventories conversion period, APP is account payables payment period, Size is company size, Revenue Increase is an annual increase in sales revenue, LEV is financial leverage, FIX is fix financial assets ratio; and VAR is the volatility in net operating profit.

In all five models, the dependent variable is the gross operating profit as a representative of profitability. The other variables are independent and control variables of analysis. The analysis was made with the Fixed Effect Model using the Ordinary Least Squares method.

In the first model, a regression of the account receivables collection period about the gross operating profit was performed. The second is the inventories conversion period. In the third is the account payables payment period. In the fourth is the cash conversion cycle. In the fifth, the three measures of working capital management (ARCP, ICP, and APP) are set back. CCC is omitted here to avoid the problem

of multicollinearity between variables displayed via variance inflation factors VIFs.

Control variables included in the analysis are: company size, sales revenue growth, financial leverage, fix financial assets, and volatility of net operating profit.

Table 4 in the Appendix presents the results of the regression analysis using the Fixed effect model that provides more detailed information on the relationship between management with working capital and profitability.

In the first model, where the account receivables collection period is taken as an independent variable, we can see that statistically significant variables are all variables included in the model, except the control variable fixed financial assets.

In the second model, where the inventories conversion period is taken as a dependent variable, has four statistically significant variables, namely: company size, sales revenue growth, financial debt, and the variability of net operating profit.

In the third model, where the account payables payment period is taken as an independent variable where except for the control variable fixed financial assets, all other examined variables are statistically significant.

In the fourth model, where the independent variable is the cash conversion cycle and has the same construction of statistically significant variables as the previous statistically significant independent variable and three of the control variables.

Finally, the fifth model, which is in a way a summary model that incorporates all three components of working capital, shows that no independent variable is statistically significant, except for four statistically significant control variables: company size, growth of sales revenues, financial leverage, and volatility of net operating profit.

The account receivables collection period has a statistically significant positive relationship with the company's profitability. That is, for a 1-day increase of the collection period, the profitability increases by 0.0276%. This is contrary to financial logic which suggests that receivables should be collected faster and liabilities paid off as late as possible. Faster collection of receivables will allow us to get to the cash faster than we can invest in a new production cycle. Therefore, we would expect a negative relationship with profitability. The detected positive relationship is explained by the fact that the companies in the Macedonian economy have a practice of selling with deferred payment,

i.e., credit sales, to stimulate sales. Greater sales lead to greater profitability. At the same time, the account receivables collection period is much shorter than the account payables payment period.

The inventories conversion period is not a statistically significant variable in the regression analysis of the particular sample examined, however, it shows a negative correlation with the profitability of the company. The negative correlation between GOP and inventories conversion period is consistent with most research as in Deloof (2003), Lazaridis and Tryfonidis (2006), Padachi (2006), and Naumoski (2019). The negative relationship indicates the fact that the shorter the inventory days (of raw materials, production in progress and finished products) the higher the profitability would be, as a result of the reduced cost of holding inventories.

In model 3 there is a statistically significant positive relationship between account payables payment period and the company's profitability. For each increase in the account payables payment period for 1 day, the profitability of the companies increases by 0.0078%. This is a logical relation and is explained by the fact that more profitable companies wait longer to pay their obligations to suppliers. Thus, they have at their disposal the cash to finance new inventories that will lead to new sales and GOP growth. The results obtained for the account payables payment periods are consistent with the crucial rule that companies should strive to delay the payment of liabilities to suppliers as much as possible, while taking care not to jeopardize good business relations with them.

The cash conversion cycle in model 4 shows a negative relationship with the company's profitability. Shin and Soenen (1998) and Naumoski (2019) also found a negative relationship. A negative relationship is expected. Namely, the size of the CCC depends on the operating cycle (inventory period plus account receivables period) and account payables payment period. The shorter the operating cycle, the higher the turnover and the higher the profitability of the company (according to the DuPont equation). Furthermore, CCC is the period in which we use money provided from other sources, and this causes costs to the company. For example, if the money is secured by a loan, we will have to pay interest. A lower CCC would mean less working capital investment, and if the CCC were zero, it would mean that suppliers fully fund current assets.

According to Shin and Soenen (1998), the negative relationship between CCC and profitability can be explained by market power, i.e.,

market share. This would mean that the shorter CCC period is due to the bargaining power of suppliers and/or buyers, but also greater profitability due to market dominance. In addition, the negative relationship between these variables can also be explained by the fact that minimizing working capital investment can increase profitability. This means that cash in the form of money is not kept in business for too long and that free cash is used to invest and increase the company's profitability. In this case, to reduce one day of the cash conversion cycle, the company would have higher profitability of 0.014%.

All control variables of the analysis, except fixed financial assets, are statistically significant in all five models.

In all five models, there is a positive statistically significant relationship between company size and profitability. Large companies are usually companies in a mature stage, with established market power and an established reputation with customers. On the other hand, they have easier access to the market for the supply of raw materials, but also to the financial markets where they provide funds for financing at lower costs, both due to greater creditworthiness and also due to the economy of scale in purchases and borrowing. Here, the costs of issuing debt or equity that are fixed, are lower for larger issues. All of these circumstances lead to a range of cost-effectiveness for large companies and greater profitability.

The next control variable, which in all regression models has a positive statistically significant relationship with profitability, is the growth of sales revenue. This positive relationship is very logical because the profitability of the company is represented by the gross operating profit, which is also represented by the following formula: (sales revenue – the cost of goods sold + depreciation and amortization)/(total assets - financial assets), so hence it can be seen that any increase in sales revenue will mathematically increase the company's profitability.

The third control variable, financial leverage has a pronounced negative statistically significant relationship with the profitability of companies. That is, this statement is logical because the more indebted a company is, the lower its profitability will be. Debts cause interest costs and low profitability. Unlike financial debt, the volatility of net operating profit has a statistically significant but positive relationship with the company's profitability in all models of analysis.

The only control variable that is not statistically significant is fixed financial assets, but in most cases, it still has a negative relationship with profitability. The reason for this lies in the fact that a company's fixed assets represent a higher cost for it because they aim to be used longer than working capital. To this end, any increase in them will result in a decrease in the company's profitability.

In the conducted regression analysis, we can see that in all five models, F-statistics is significant which indicates a good specification of the model, and the adjusted coefficient of determination is 62%, which indicates that the working capital variables largely explain the profitability of the company.

5. Conclusion

Working capital management is one of the crucial issues in corporate finance. The managers of the company, who are agents appointed by the shareholders, have the task to generate the required returns for their shareholders and increase the value of the company's share. In this context, effective and efficient management of working capital is an essential issue that should contribute to achieving the ultimate goal of the company.

Working capital is a complex category that consists of several components such as inventories, and receivables, but also liabilities to suppliers. To show the relationship between them and profitability, in this paper, we have used a sample of 33 manufacturing companies listed on the Macedonian Stock Exchange, for a period of ten consecutive years (2010-2019). To answer the question of whether and how working capital affects the profitability of selected companies, we conducted a panel regression analysis.

The result shows that working capital affects the profitability of the company through the following variables: account receivables period, inventories conversion period, account payables payment period, cash conversion cycle, company size, and sales revenue growth. Statistically significant results were obtained for the specific variables in this paper and for that reason, the specific companies should actively focus on managing all components of working capital, but with special emphasis on the listed variables.

This analysis was conducted on a sample of industrial companies. The same analysis can be performed on individual sectors, or at the level of all companies, to get a different view of WCM's impact

on profitability. The same analysis can be repeated for a shorter period and the observations can give us a deeper knowledge of what is specifically happening from year to year and how the measures taken to manage working capital have contributed to the increase of the company's profitability. In this way, companies will receive information on business decisions regarding more efficient and effective management of working capital with the ultimate goal of increasing the profitability of companies.

Specifically, we found that the profitability of Macedonian industrial companies grows with the increase in account receivable collection period, account payables payment period, company size, sales growth, and volatility in net operating profit. Additionally, profitability increases with decreasing cash conversion cycle and financial leverage. The inventories conversion period and fixed financial assets do not affect the profitability of the company. From all the above, we can conclude that, by means of the effective and efficient management of the components of working capital, we can contribute to improving the profitability of companies.

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Correlation analysis

	Gross operating profit	Account receivables period	Inventories period	Account payables payment period	Cash conversion cycle	Company size	Sales growth	Financial leverage	Fixed financial assets	Volatility in net operating profit
Gross operating profit	1									
Account receivables period	0.02	1								
Inventories period	0.01	0.04	1							
Account payables payment period	-0.02	0.91	0.17	1						
Cash conversion cycle	0.03	-0.45	0.80	-0.44	1					
Company size	0.16	-0.24	-0.09	-0.09	-0.09	1				
Sales growth	0.04	-0.08	0.90	0.05	0.78	-0.01	1			
Financial leverage	-0.05	-0.12	0.24	-0.05	0.22	-0.15	0.21	1		
Fixed financial assets	-0.06	-0.06	-0.04	-0.03	-0.04	-0.11	-0.01	0.38	1	
Volatility in net operating profit	-0.10	-0.03	0.36	-0.01	0.33	-0.23	0.29	0.10	0.06	1

Source: Authors' own calculations

Table 4

Results of the regression analysis

Independent variable	Dependent variable: Gross operating profit				
	Model 1	Model 2	Model 3	Model 4	Model 5
C	-8.7604*	-6.8019*	-7.9926*	-7.3894*	-8.2082*
	(1.1591)	(1.0975)	(1.0682)	(1.0091)	(1.4314)
Account receivables collection period	0.0003*				0.0003
	(0.0001)				(0.0003)
Inventories conversion period		-0.0002			-0.0002
		(0.0001)			0.0001
Account payables payment period			0.00008*		-0.0001
			(0.00004)		(0.0001)
Cash conversion cycle				-0.0001*	
				(0.0001)	
Company size	0.4190*	0.3333*	0.3845*	0.3574*	0.3948*
	(0.0529)	(0.0505)	(0.0490)	(0.0467)	(0.0651)
Sales growth	0.0345*	0.0911*	0.0337*	0.0662*	0.0897*
	(0.0101)	(0.0367)	(0.0103)	(0.0160)	(0.0385)
Financial leverage	-0.3332*	-0.3725*	-0.3466*	-0.3247*	-0.3070*
	(0.1216)	(0.1221)	(0.1230)	(0.1234)	(0.1229)
Fix financial assets	-0.0632	0.0236	-0.0637	-0.0509	-0.0216
	(0.3646)	(0.3724)	(0.3696)	(0.3659)	(0.3642)
Volatility in net operating profit	1.80212*	1.1689*	1.6482*	1.6046*	1.7068*
	(0.3607)	(0.2981)	(0.3509)	(0.3218)	(0.3671)
R^2	0.6789	0.6659	0.6708	0.6763	0.6892
Adjusted R^2	0.6202	0.6048	0.6106	0.6171	0.6232
F-statistics	11.563	10.900	11.1402	11.4245	10.4381

*Note: Standard errors in parenthesis; * indicates the coefficients that are statistically significant with a confidence level of 5%*

Source: Authors' own calculations

FACTORS AFFECTING THE ADOPTION OF FINANCIAL TECHNOLOGY AMONG THE BANKING CUSTOMERS IN EMERGING ECONOMIES

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Abstract

Financial Technology has shifted the way consumers use banking. Implementing new technology like big data, analytics, cloud computing and deep learning, banks can significantly improve accessibility, inclusivity, and increase profitability for banks. This article looks at the possible effect of Fintech and Big data Analytics on the efficiency of banking business. The study gathers data from clients of 53 banks across Asia and Latin America from May 2022 to July 2022 with 5436 observations. We conducted several regressions to gather statistical insights. The outcome of the study suggests that certain factors can significantly affect the adoption of FinTech more than others. Further studies should be conducted based on demographic characteristics of the customers as it may significantly affect the findings.

Keywords: Fintech, credit institutions, developing countries, clients' preferences

JEL Classification: G20; G21; G23

1. Introduction

With the fast advancement of internet, innovative developments in conventional industries are growing rapidly. Since 2016, Financial Technology of FinTech started getting attention of researchers and executives alike to address certain needs of customers in the financial services sectors. Broadly, fintech consists of implementation of various

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solutions to improve financial businesses. Associated areas include big data, blockchain, cloud computing, artificial intelligence, machine learning and quantum computing. Fintech is a tool that is currently hard to apply. Fintech entails both digital innovative developments and technology enabled innovative developments in the financial segment. This type of innovative development can disrupt pre-existing business structure, blur business borders, facilitate strategic disintermediation, alter how current companies provide services and products, offer novel gateways for entrepreneurship, and democratize access to banking services (Delgosha, et al., 2020).

Fintech consists of parts of financial firms whereby technology is ubiquitous, for example front-end customer solutions, and revolutionary blockchain tools, and cryptocurrencies including bitcoin and Ethereum. Examples of innovative developments in fintech nowadays include different uses of blockchain solutions, digital trading methods, artificial intelligence and machine learning, equity crowdfunding, and peer-to-peer lending (Amakobe, 2015). The advancement of fintech has improved the competitiveness of consumer banks, as digital solutions have played a tremendous role in enhancing the effectiveness of solutions provided by banks and other monetary institutions to both retail customers and small businesses. Banks and other monetary institutions are trying to find ways to lessen the expense of client acquisition and risk management, bring down operating expenses and additionally boost performance and improve the end user experience for a wider variety of customers, resulting in a more and better need for fintech implementation (Indriasari, et al., 2019).

Fintech has been broadly applied in a lot of countries today, especially in those with a strong economic background in the areas of information technology as well as finance, such as Finland, the United Kingdom, Korea, as well as China (Srivastava, et al., 2017). Fintech is still relatively young in developing nations across Asian and Latin American continents like Colombia, India, and Pakistan etc., but it promises to become a major industry soon. Fintech received a lot of attention from decision makers, scientists as well as particularly regulators in the financial sector. In addition, fintech is also a hot topic at conferences and forums. There has been little empirical research carried out to find out about fintech as well as fintech uses in the financial industry.

While FinTech is well established in developed countries, the developing countries are still struggling with application of big data in fintech even though it has enormous potential (Hassani, et al., 2018). Not a lot of research has been conducted in respect to developing countries to understand how big data and FinTech can transform the banking industry (Keskar, et al., 2021). The problem is necessary to address because of the impacts it can have on hundreds of millions of banking customers, by getting personalized services, thus making their lives easier. Banks and financial institutions can provide better services at lower expenses, resulting in higher profit and customer loyalty. The gap does not exist in one or two countries but across developing nations in the whole world (Mungai & & Bayat, 2018). Here in the research paper, we target it towards Asia and Latin America since their infrastructure is in developing phase which can be greatly leveraged for implementation of big data enabled fintech application. The research questions will be addressed in the next section.

The research paper attempts to address the gap to give bank executives, policy makers some reasons to rethink their application of big data in fintech. Thus, it is a fascinating research subject and there's still a great deal of room for exploration in the developing countries. The authors acknowledge this and are going to undertake this research to find out about fintech as well as fintech use in the banking industry. The authors also look at the elements that impact the Willingness of customers to make use of fintech services. Using the research data gathered from bank clients throughout the questionnaire procedure. The findings are going to be crucial for banking industry decision makers, regulators, and researchers.

The remaining of the paper is structured as follows: in section 2 a review of the literature is carried out; in the next section it is described the research methodology and data used; in section 4 the empirical results are displayed; in the final section conclusions summarizing the research are presented.

2. Literature review

2.1 Theoretical background

The rise of fintech has had a significant impact on the standard businesses of consumer banks. In crucial areas like consumer mortgages, banks have lost market share to shadow banks and fintech lenders, who are subject to different regulations and relish technical

advantages (Bedeley & Iyer, 2014). One distinction between traditional lenders and fintech lenders in the mortgage sector is that the fintech firms provide lending to more creditworthy customers than shadow banks, and hence can charge a higher interest rate (Shakya & Smys, 2021). Another difference is that the former's approval happens twenty percent more quickly, without raising mortgage risks (Gupta, et al., 2019). Fintech lenders additionally answer more elastically to insist on recessions and have a better propensity to refinance, particularly for borrowers prone to gain from it. This way, fintech lenders have increased the effectiveness of fiscal intermediation of mortgage marketplaces (Boumlik & Bahaj, 2017). The creation of fintech is usually regarded as a promising method for minimizing unequal entry to recognition. Imbalance of rewards in financial companies can lead to partial lending choices (Yu & Song, 2021). Fintech lenders might relieve discrimination in mortgage markets. Traditional lenders charge minorities more for buying and refinancing mortgages, and fintech algorithms discriminate forty percent lower than face-to-face lenders (Statista, 2022). Innovative monetary data and technologies might provide exceptional ability for screening borrowers. The predictive power of information gathered by fintech, grounded on consumers' digital footprints, equates, or perhaps surpasses regular evaluation bureau scores with regards to forecasting customer default rates (Sun, et al., 2014).

Banks will expand their service to customers by using fintech. Fintech is thus not really a basic blend of financial services and information technology, but a technology application for conventional services to widen the scope (Gupta, et al., 2019). Fintech opens numerous new experiences for customers and makes it easier to transact. Fintech could help mobile phone customers enjoy banking solutions on their tablets and smartphones. Thus, customers are now able to use banking services from any location instead of needing to drive to the grocery store (Shakya & Smys, 2021). Thus, in the financial industry, fintech products play an extremely crucial role, and simultaneously carry several advantages. To boost the quality of fintech products in the financial industry, it is essential to think about factors that impact the willingness of customers to make use of fintech services (Al-Dmour, et al., 2021). Banks will increase market share and enhance operational efficiency when increasing their willingness to make use of fintech services from their customers. This could be read as a readiness of the service down the road for the aim of the customer.

Hajiheydari et at., (2021) found that willingness could explain 72% of real customer service (Hajiheydari, et al., 2021). There are four factors that influence the willingness of customers to make use of fintech services: Considered utility (UTI), convenience of use (SIM), customer trust (TST) and network (NET).

In the current literature there are five widely used techniques for determining bank inputs: the generation technique, the intermediary technique, the advantage technique, the end user expense technique, and the additional benefit technique (Munar, et al., 2014). The primary distinction between the options will be the presence of a rationality on the bank, and another comprehension of the role of the bank, and the subsequent selection of inputs. As discussed previously, the output banks are calculated based on the generation technique, which is the deposit and mortgage profiles. A bank's inputs are often capital and fixed labor expenses. In contrast, the intermediary technique, as discussed previously, considers banks pool nonproductive money, and send them to the people who want them, acting as an intermediary between fund providers and demanders. The advantage technique additionally considers banks as intermediaries between money providers and demanders and describes the result of a bank as asset on its balance sheet, primarily which includes loans (Munar, et al., 2014). Based on this technique, deposits are considered debts compared to outputs. In this process, it is considered that the asset should be viewed as an output if the opportunity cost of the bank is lower compared to the return on the asset. Deposits may also be considered debts (liabilities) if the opportunity cost of the bank is higher than the valuation of the liability.

To conclude, fintech influences the effectiveness of consumer banks to come down with many methods. By this research, we implement a nonparametric technique for information evaluation to assess the multi-input and multi-output results with the banking business and compute the willingness to use Fintech (WFT) of consumer banks, and simply evaluate the effect of fintech on the effectiveness of consumer banks.

2.2 Research Questions

2.2.1 Utility (UTI) and willingness to use FinTech (WFT)

The willingness of the customer to make use of fintech services can be significantly affected by the utility of the service. This service is extremely useful as well as will enhance the quality of service and the

effectiveness of the user because of it (Wong & Wong, 2020). Furthermore, fintech services are able to enhance the overall experience of customers and overcome the limits of conventional banking.

Banking is a service. Hence, opinion of utility could certainly influence customer willingness to make use of fintech services. Additionally in a lot of empirical studies, including the one by Wong et al (2020) which found that utility might drive the willingness to adopt fintech services (Wong & Wong, 2020), this effect is found. On this basis, the study offers these research hypotheses:

H1: The view of utility (UTI) influences the motive to make use of fintech services (WFT).

2.2.2 Simplicity (SIM) as well as wiliness to use Fintech (WFT) services

Perception of convenience of use could be identified as the level to which users feel at ease and effortless fintech services. If the fintech service is used correctly, it can provide customers with unique experiences that will satisfy their needs (Radmehr & Bazmara, 2017). Customers will probably be more prone to make mistakes when working with fintech services, which can result in financial losses for business owners. So, one of the main factors that influence customer behavior will be the simplicity of use of the service. To put it another way, viewed simplicity of utilize can influence the decision of a consumer to make use of fintech services. Also, this effect is seen in empirical research by Sprovieor (2020) that simplicity can lead to greater willingness to use new technology (Sproviero, 2020). The authors' research hypothesis is therefore as follows:

H2: Perception of the ease of utilize (SIM) influences the willingness to use fintech (WFT) services.

2.2.3 The Trust of clients (TST) as well as Willingness to use Fintech (WFT) Services

One factor that makes a big difference with fintech services is trust. Radmehr et al., (2017) suggests that user trust could have a considerable effect on their actions (Radmehr & Bazmara, 2017). The research conducted by Indriasari et al., (2019) found that trust has a significant impact on the Willingness of customers to make use of fintech solutions (Indriasari, et al., 2019). The authors therefore suggest the next research hypotheses:

H3: The customer trust (TST) influences the willingness to make use of fintech services (WFT) expertise.

2.2.4 Network (NET) as well as Willingness to use Fintech (WFT) Services

It can be thought of as Network effect when customers find out that individuals who are crucial to them within their circle of friends. Society (friends, colleagues, relatives) trusts the services. Clients generally use fintech solutions when they find out how they can help the society at large (Hassani, et al., 2018). So, Network effect could influence the Willingness of customers to make use of a service. Additionally in a lot of empirical studies, this effect is found. Based on this point, the authors' research concept can be as follows:

H4: Network (NET) influences the motive to make use of fintech (WFT) services.

3. Data and methodology

This article looks at the perception of fintech as well as its application in the banking industry. In order to address this research objective, the authors analyze fintech development trends, particularly fintech application of banking sector. The authors carried out an analysis of factors impacting customers 'willingness to utilize fintech services to enhance the quality of fintech products at banks. For this particular purpose, they collected data from a poll of 5436 clients of financial institutions across Asia and Latin America. The banks were selected purposefully to include only those that have more than $100m worth of assets and have been in the industry for more than 10 years at least. We did so to ensure that we only include the banks that have enough capital to pursue fintech. The customers were selected randomly via invitations in social medias, mostly LinkedIn, and Facebook. The countries included in the survey from Asia were India, Pakistan, Sri Lanka, Bangladesh, Cambodia, and Philippines while the countries included from Latin America were Colombia, Costa Rica, Guatemala, Argentina and Bolivia. As outlined before, we used questionnaire, and the questionnaire collected data from May 2022 to July 2022. The questionnaire had a seven-point scale, with 1 being the lowest, and 7 being the highest important for any specific factor.

The authors used multivariate regression for the quantitative technique to calculate re-search model. The authors ran Cronbach's Alpha before they did the regression analysis. To figure out the correct

factors to place into the research model, use the test as well as exploratory factor analysis.

The research formula is designed on previous studies' results as well as the analysis hypotheses proposed by the authors. As a result, the dependent variable is the willingness to make use of fintech (WFT) service. The independent variables include the perception of worthiness (UTI), simplicity of use (SIM), user trust (TST) and network (NET).

Figure 1

The proposed research models
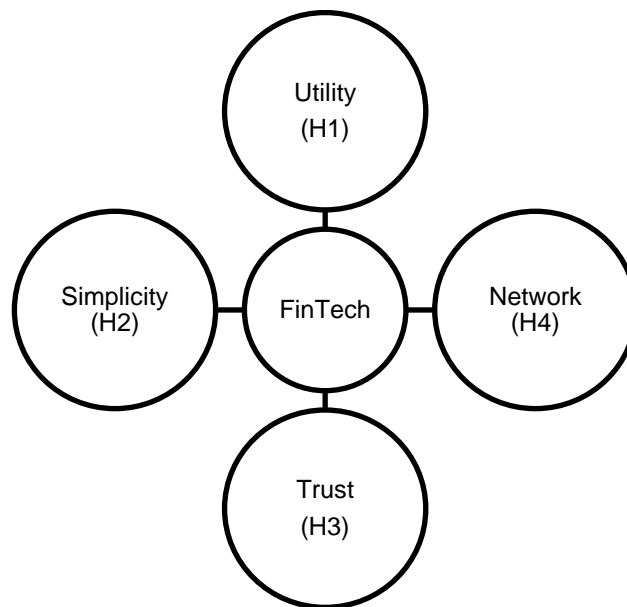
Source: authors

Table 1 illustrates those 4 independent variables, such as utility (UTI), Network effect (NET), trust (TST) and simplicity of make use of (SIM), could influence the willingness to utilize fintech (WFT) services. That is an important foundation for authors to carry out multiple regression analyses in the following phase to evaluate the research type.

Table 1

Variable		Explanation	Source
Utility (UTI)	UTI1	Buyers are able to be using fintech offerings in order to meet their desires.	(Bedeley & Iyer, 2014)
	UTI2	Utilizing fintech offerings are going to save clients a massive amount period.	
	UTI3	Buyer labor effectiveness improves through the use of fintech expertise.	
	UTI4	When working with fintech program, buyers are able to use numerous utilities.	
Simplicity (SIM)	SIM1	Clients consider the businesses of fintech expertise very easy.	(Gupta, et al., 2019)
	SIM2	The fintech program method guidance is clear and simple to comprehend.	
	SIM3	The buyers are able to have interaction together with the fintech program structure all over.	
Trust (TST)	TST1	Facts protection will work within fintech expertise.	(Hajiheydari, et al., 2021)
	TST2	Exclusively established fintech businesses offer fintech expertise.	
	TST3	Fintech businesses wish to generate loyalty with their clients.	
Network Effect (NET)	NET1	Buddies, colleagues, relatives, etc.) frequently make use of fintech providers.	(Keskar, et al., 2021)
	NET2	The analysis or job atmosphere on the consumer supports fintech expertise.	
	NET3	While technologies developments, therefore, does the fintech program.	
Willingness to use Fintech (WFT)	WFT1	Buyers are going to use fintech program shortly if it is not utilized.	(Shakya & Smys, 2021)
	WFT2	Clients wish to keep on utilizing fintech products in case they're utilized.	
	WFT3	The fintech solutions they normally use is going to be suggested for their relatives or neighbors.	

Source: authors

In order to identify appropriate elements to be added in the research model, it has been carried out a Cronbach Alpha test as well as exploratory factor analysis.

4. Results

Table 2 shows the results of the Cronbach Alpha test and researching factor analysis as follows:

Table 2

Results of the testing research model

Variables	Code	Cronbach's Alpha	Component			
			1	2	3	4
Utility (UTI)	UTI	0.791	0.711	0.000	0.000	0.000
Network (NET)	NET	0.818	0.000	0.827	0.000	0.000
Trust (TST)	TST	0.790	0.000	0.000	0.823	0.000
Simplicity (SIM)	SIM	0.724	0.000	0.000	0.000	0.741

Source: authors

The ANOVA test confirms that the results of estimation of the research model at 1 % significance are significant (see Table 3). Furthermore, since the R Square is 76.8 %, this implies that 76.8% of the variant in fintech customer willingness to make use of fintech services will likely be discussed by the independent variables in the model.

Hence, at a significance degree of 1%, the willingness of the consumer to make use of fintech solutions is positively impacted by 4 independent variables: utility (UTI), social impact (NET), trust (TST) and interpreted user friendliness (SIM). On this basis, the effects of evaluating the research design include the following equation:

$$WFT = 0.512*UTI + 0.343*NET+ 0.312*TST+ 0.212*SIM \qquad (1)$$

Table 3

Results of the coefficient estimation

Dependent Variable: Willingness to adopt FinTech (WFT)			
Variable		**Beta**	**Sig.**
Utility (UTI)		0.512	0.000
Network effect (NET)		0.343	0.000
Trust (TST)		0.312	0.000
Simplicity (SIM)		0.212	0.000
N	5436		
ANOVA (sig.)	0.000		
R Square		76.8%	

Source: authors

Impact of seen practical use (UTI) on the willingness to make use of fintech (WFT) expertise: Re-search results indicate that the notion of convenience (UTI) positively impacts the willingness to make use of fintech (WFT) expertise. This particular outcome is in line with the prior research (Delgosha, et al., 2020). This shows that the convenience of fintech services will add substantially to enhancing the quality of bank account services, and can substantially enhance the effectiveness of users' operate. Thus, customers tend to make use of fintech products with many helpful functions that are understandable. In developing countries, fintech solutions continue to be rather new. Thus, utility is a situation of great concern to clients just before they plan make use of fintech services.

The effect of social impact (NET) on the willingness to make use of fintech (WFT) expertise: The authors discovered the good effect of social impact (NET) as well as on the willingness to make use of fintech (WFT) expertise. Appropriately, when clients notice neighbors (such as family, buddies, colleagues) utilizing fintech services, buyers will tend to wear it. This's extremely applicable because individuals are usually worried about some other individuals in society, therefore the effect of society typically has a terrific effect on the willingness to work with the program of the buyer. Thus, it could be said that social impact is among the key elements which have a good effect on the customer's goal to make use of fintech services. This influence can also be discovered around (Boumlik & Bahaj, 2017).

The effect of confidence (TST) on the willingness to make use of fintech (WFT) expertise: Research results indicate that client loyalty (TST) positively impacts the willingness to make use of fintech (WFT) expertise. This influence is additionally in line with earlier research outcomes (Al-Dmour, et al., 2021). In Asia and Latin America, you will find numerous banks providing fintech products with very similar features. Thus, trust is usually a crucial priority for customers that intend to work with fintech services. Appropriately, the banks which are often traded by clients as well as the esteemed banks would be the areas which produce the trust of people, as well as the buyers also often give priority to utilizing fintech solutions of this banks.

Impact of simplicity of use (SIM) on the willingness to make use of fintech (WFT) expertise: The writers have discovered the good effect of the seen simplicity of use (SIM) on the willingness to make use of fintech (WFT) expertise. This's additionally very in line with the qualities of a relatively young service like fintech. Because, when planning to utilize a service, customers frequently consult the issue including "Is it so easy to utilize or not?". Appropriately, if the fintech program is easy and comfortable to use, buyers won't wait when making a willingness to use this particular program. The good effect of the simplicity of use on fintech willingness can also be in line with earlier observations (Keskar, et al., 2021).

Figure 2

Results of the coefficient estimation
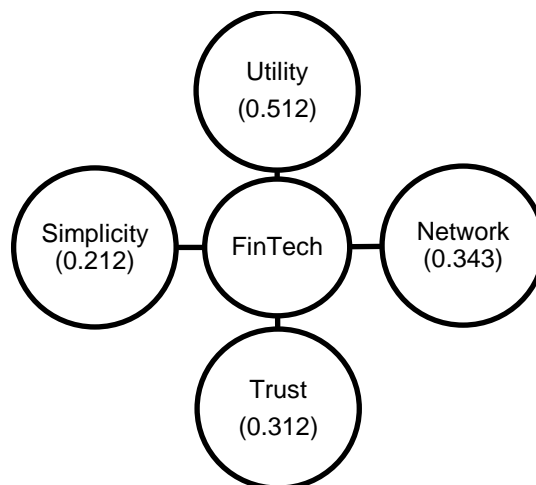
Source: authors

5. Conclusions

Study results demonstrate that fintech service is important for the banking industry in Asia and Latin America. Using multivariate regression, we identify factors that influence customers' willingness to make use of fintech services. Appropriately, the willingness to make use of fintech (WFT) solutions is positively impacted by the notion of convenience (UTI), cultural influence (NET), buyer loyalty (TST), plus simplicity of use (SIM). So, to enhance customers' goal to use fintech providers, banks must consider components of the service 's qualities including ease and usability of use. At the same time, Network effect and customer trust are also problems that banks must be worried about (Gupta, et al., 2019). These are policy implications that are important for regulators at banks. Moreover, the outcomes of this research are beneficial for researchers and policymakers.

Based on the results of this research, several policy implications for the improvement of fintech products in the banking industry of Asian and Latin American countries can be noted, as follows:

- Banks should further enhance the functions of fintech services, whose focus mainly on enhancing the utility of the service to fit each consumer sections. At the same time, the transaction procedure through fintech services must be created conveniently and easily for buyers (Yu & Song, 2021). Banks must use a method to improve the picture as well as track record of banks in the industry. At the same period, banks also have to definitely market as well as disseminate information about services and products to the community to grow market share as well as limit chances in transactions (Shakya & Smys, 2021).

- Banks should improve the cooperation of theirs with fintech to make use of the companies' present technical benefits, therefore aiming to enhance the quality of high-tech program services and take the greater experiences to the buyers. With this particular synergy, banks can diversify services and products implementing excessive technology, improving use of clients at cost that is low. At the same period, the banks themselves must boost purchase, upgrade know-how infrastructure, as well as improve program security.

- Banks should enhance the instruction of top-quality human resources. This human aid is not just effective at specialized understanding but additionally must understand applications dependent on today's technology in financial services. Also, the authorities must augment as well as finish the authorized framework, mechanism, as well as policies for fintech pursuits. At the same time, building fintech advancement policies must be connected to economic and monetary policies.

The study makes several contributions to the fintech literature. Firstly, it enriches the literature in the field by addressing this problem at the level of emerging economies. Secondly, it identified several important factors that contributed to the adoption of fintech services among consumers.

Although the objective of the paper was achieved, the study suffers from certain restrictions and limits by not taking into account several other things that could influence the support for fintech customers, such as the information technology platform, the monetary capacity of the customers, potential risks of using the service. Further research would be useful to have a longer-term understanding of the significance of the factors.

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Financial Studies

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