NEAR EAST UNIVERSITY

INSTITUTE OF GRADUATE STUDIES

DEPARTMENT OF BANKING AND ACCOUNTING

**AN EMPIRICAL ANALYSIS OF THE DETERMINANTS OF DIVIDEND
POLICY: EVIDENCE FROM SERBIAN BANKS**

M.Sc. THESIS

SAMAN GHAZI

Nicosia

February, 2022

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M.Sc.THESIS

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Approval

We certify that we have read the thesis submitted by SAMAN GHAZI titled **"AN EMPIRICAL ANALYSIS OF THE DETERMINANTS OF DIVIDEND POLICY: EVIDENCE FROM SERBIAN BANKS"** and that in our combined opinion it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Banking and Accounting.

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Declaration

I hereby declare that all information, documents, analysis and results in this thesis have been collected and presented according to the academic rules and ethical guidelines of Institute of Graduate Studies, Near East University. I also declare that as required by these rules and conduct, I have fully cited and referenced information and data that are not original to this study.

SAMAN GHAZI

10/02/2022

Dedication

I dedicate this project to God Almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. He has been the source of my strength throughout this program and on His wings only have I soared. I also dedicate this work to my father, mother, brothers and sisters who have encouraged me all the way and whose encouragement has made sure that I give it all it takes to finish that which I have started. Thank you.

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.

Abstract

An Empirical Analysis of the Determinants of Dividend Policy: Evidence From Serbian Banks

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The study analyses an empirical analysis of the determinants of dividend policy: Evidence from Serbian banks reported by banks through disclosed dividends paid by the bank. The study was necessitated by the lack of both coverage and robust methods testing the relationships and cointegration between fair value accounting and bank-specific variables. As a result, panel regression models were applied to annual panel data from 2009 to 2018 collected from 10 Serbian commercial banks. The findings revealed that improvements in bank leverage, performance and liquidity, and previous dividends were noted as having positive effects on reported dividends paid. It was suggested that proper and effective asset and liquidity management strategies are required to improve the use of assets and funds to enhance operational effectiveness and bank performance essential in rewarding stakeholders with dividends. Based on what has been established, the originality of the present article lies in its capacity and uniqueness from the previous studies as it presents a broad presentation of the concept of the quality of accounting earnings and its impact on the financial reports of Serbian banks.

Keywords: bank dividends, bank liquidity, bank performance, previous dividends, quality of financial information, vector error correction model.

Özet

Temettü Politikasının Belirleyicilerinin Ampirik Analizi: Sırp Bankalarından Kanıtlar

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Çalışma, bankalar tarafından açıklanan temettüler yoluyla bildirilen finansal bilgilerin kalitesini artırmak için adil değer muhasebesi kullanmanın etkilerini analiz eder. Çalışma, hem kapsama alanı hem de sağlam yöntemlerin olmaması, adil değer muhasebesi ve bankaya özgü değişkenler arasındaki ilişkilerin ve denkliğin testılması ile gerekliydi. Sonuç olarak, 10 Sırp ticari bankasından toplanan 2009-2018 yılları arasında yıllık panel verilerine panel gerileme modelleri uygulandı. Bulgular, banka kaldıraç, performans ve likiditedeki iyileşmelerin ve önceki temettülerin bildirilen temettüler üzerinde olumlu etkileri olduğunu ortaya koydu. Paydaşların temettülerle ödüllendirilmesinde gerekli olan operasyonel etkinliği ve banka performansını artırmak için varlıkların ve fonların kullanımını iyileştirmek için uygun ve etkili varlık ve likidite yönetimi stratejilerinin gerekli olduğu öne sürüldü. Ortaya çıkanlara dayanarak, mevcut makalenin özgünlüğü, muhasebe kazançlarının kalitesi ve Sırp bankalarının mali raporları üzerindeki etkisi kavramının geniş bir sunumunu sunduğu için önceki çalışmalardan kalma kapasitesi ve benzersizliğinde yatmaktadır.

Anahtar Kelimeler: Banka temettüleri, banka likiditesi, banka performansı, finansal bilgilerin kalitesi, önceki temettüler, vektör hata düzeltme modeli.

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List of Abbreviations

BL:	Bank Liquidity
BLUE:	Best Unbiased Linear Estimators
BLV:	Bank Leverage
BP:	Bank Performance
DP:	Dividend Payout BL
GLS:	Generalized Least Squares
IFRS:	International Financial Reporting Standards
JSE:	Johannesburg Stock Exchange
OLS:	Ordinary Least Squares
PD:	Previous Dividends
ROA:	Return on Assets
ROE:	Return on Equity

CHAPTER I

Introduction

Financial institutions like banks have distinct operational activities that are different from ordinary non-financial institutions. Notably, banks use assets to generate their revenue (Hull, 2012) and rely on the importance of valuation methods to assess their performance. Bank performance indicators such as Return on Assets (ROA), asset utilisation and other efficiency indicators rely on the quality of reported financial information. Hence, banks need to use appropriate asset valuation methods. However, the decision to use a particular valuation method is influenced by various banks specific factors. For instance, Serrano (2019) highlighted that changes in bank size require banks to adopt Fair Value Accounting (FVA), which provides an accurate measure of their assets and liabilities. Daly and Frikha (2017) note that liquidity risks compel banks to use proper and effective valuation methods matching the specific country's financial liquidity situation (Gambetta, Azcárate-Llanes, Sierra-García, & García-Benau, 2021).

Studies also consider that country-specific variables are instrumental in determining the quality of reported financial information (Sun, Mohamad & Ariff, 2017; Usman & Lestari, 2019). This can be supported by relative suggestions made by Serrano (2019) citing that economic variables like inflation tend to affect the quality of reported financial information. As a result, banks are tasked with a huge mandate of ensuring that they use appropriate accounting valuation methods in valuing their assets. This is in light of observations contending that certain valuation methods are more effective than others depending on the internal and external conditions faced by an organisation (Fortin, Hammani & Magnan, 2021; Ghosh, Liang Pterova, 2020).

Meanwhile, there is significant consideration depicting that a dividend policy is vital for determining the accurate value of assets leading to improved quality of disclosed financial information (Dwijayanti & Masdupi, 2021). Nevertheless, arguments regarding the use and importance of a dividend policy usually occur when a dividend policy is compared to other corporate governance and investments practices. For instance, Mardiana and Setiyowati (2019) contend that a dividend policy is beneficial because it offers accurate asset and liability valuation on an ongoing basis

to users of the company's reported financial information. Another study by Lu and Zhang (2020) also state that the potential ability of an organisation to manipulate its financial information is limited when a dividend policy is applied. It is in this regard that a dividend policy is highly preferable for valuing bank assets and liabilities (Aryani & Patrisia, 2021; Mujino & Wijaya, 2021; Paoloni, Paolucci & Menicucci, 2017). However, much more needs to be done regarding the use of a dividend policy by banks and determining its possible effects and how banks can use a dividend policy to enhance the quality of disclosed financial information.

Research Problem

Efforts to analyse both the determinants and implications of dividend policy are subject to various contrasting arguments. For instance, dividend policies are considered to be responsible for triggering an increase in distribution tax (Singh & Tandon, 2019), while others refute this claim and cite other reasons such as stock price volatility (Dereli & Topak, 2018; Rashid & Rahman, 2008). While it is suggested that dividend policies are neither good nor bad, they remain an essential component of any business institution (Dereli & Topak, 2018; Farooq & ElBannan, 2019), considerations are shifted towards FVA's use and effects on financial institutions (Anaeto et al., 2021; Ariwinata, Satya & Badjra, 2021; Athari, 2021; Silalahi et al., 2021). Studying the determinants of dividend policies in financial institutions remains a relatively underexplored area that demands significant academic attention. Besides, Paoloni, Paolucci and Menicucci (2017) assert that the quality of reported financial earnings can be analysed by comparing changes in dividends paid, but there are limited studies that apply secondary data coupled with robust quantitative techniques in analysing such changes. Besides, previous dividends are an essential aspect that influences how much dividends will be paid in both the current or future periods (Almeida, Pereira & Tavares, 2015; Goncharov & van Triest, 2011). But the influence of previous dividends is widely neglected in academic studies. However, there is a general consensus that factors like leverage (Almeida, Pereira & Tavares, 2015; Goncharov & van Triest, 2011), bank liquidity (Mamaro & Tjano, 2020; Sikalidis & Leventis, 2017 Mamaro & Tjano, 2020; Sikalidis & Leventis, 2017) and performance (Mamaro & Tjano, 2020; Sikalidis & Leventis, 2017) significantly influence dividends paid. However, the combined effects of such variables are rarely examined, especially in the context of banks in Serbia. Hence, this study addresses such concerns thereby filling

such empirical gaps and/or addressing related empirical problems by building an integrated model that analyses the combined effects of leverage, bank liquidity, bank performance and previous dividends on dividends paid by commercial banks.

Firstly, the study's contributions are initially reflected in its capacity to build an integrated model that combined the unexplored effects of bank profitability, leverage, liquidity and previous dividends as factors influencing dividends policies in the banking sector. Hence, such a model is empirically tested in a Serbian banking situation that rarely attracts empirical or academic attention. Given that dividend policies are of prominent importance, especially to commercial banks, the study used 10 Serbian commercial banks with annual data spanning from 2009 to 2018 to estimate panel models. Such an approach is important in obtaining detailed insights into the commercial banks' situation that has been prone to such issues, notably in Serbia. Hence, the study was able to highlight the significance of bank leverage, liquidity and performance as well as previous dividends on dividends paid. It is in the midst of such an approach that the study findings have highlighted that previous dividends have a positive effect on dividends paid when previous studies were suggesting the relationship to be negative. The research focuses on solving trending issues like capital budgeting, corporate growth and investment and represents a contribution to knowledge.

Research Objectives

The study aims primarily aims to determine the determinants of dividends policy. The secondary aims of the study are as follows;

1) Determine the impact of leverage on dividends paid.

2) Examine the relationship between bank performance and dividends paid.

3) Analyse the relationship between bank liquidity and dividends paid.

4) Ascertain the effects of previous dividends on dividends paid.

Research Questions

The study is guided by the above-mentioned objectives and attempts to answer the following questions;

1) What are the effects of leverage on dividends paid?
2) What is the nature of the connection between bank performance and dividends paid?
3) How does bank liquidity interact with dividends paid?
4) Do previously issued dividends affect dividends paid?

Significance of the Study

The study essentially explores the determinants of commercial banks' dividend policy. Such is important, especially when applied in the context of the banking sector, which plays an instrumental role in financial and economic growth and development. Additionally, the study uses dividend policy frameworks that are regarded as vital in dealing with stock price volatility issues (Dereli & Topak, 2018; Rashid & Rahman, 2008), which economies around the world, especially Serbia are still trying to address (Grbić, 2021). On the other hand, the study is also instrumental in understanding how banks can use dividend policy not only for communicating a banks' financial strength and value but also for creating goodwill among shareholders and driving the demand for their stocks.

Ideas provide in this study are instrumental for enhancing knowledge and understanding regarding how banks can use dividend policies to design their capital structure and for capital budgeting activities. This reflects both the theoretical and practical significance engraved in this study. Specifically, the study provides essential details capable of resulting in the integration of concepts like dividend paid, capital budgeting and capital structure with internal banking environment variables to enhance the application and effectiveness of dividend policies in managing banking institutions. Banks can use the provided information to have better insights into how they can better manage their liquidity, and assets to enhance the value and performance of their banks.

Organisation of the Study

The study is structured into five chapters that involve highlighting key issues about the determinants and importance of dividend policies in banking and finance.

The study proceeds to examine the related theoretical ideas concerning the determinants and importance of dividend policies in the second chapter. Related studies are also reviewed in this chapter. Meanwhile, chapter three focuses on analysing Serbian bank dynamics and assessing their possible effects on the use of dividend policy in banks. The adopted research methods that include data analysis, model tests and data sources are provided in the fourth chapter. The last chapter concludes the analysed results and offers suggestions on how to improve future studies.

Limitations of The Study

Examinations made in this study were confined to analysing factors influencing Serbian commercial banks' dividend policies. Hence, the study's findings cannot be generalised to non-commercial banks. Additionally, this limits the study's scope and implications.

CHAPTER II

Literature Review

Introduction

This reviews the underlying theoretical details about dividend policy concerning its definition, types, importance and determinants. Moreover, attention was also given to the decision usefulness of dividend policies as a source of information. Lastly, this section analyses related studies linked dividend policies and their determinants.

Definition of Dividend Policy

The term dividend policy is derived from the word dividends and hence, efforts to understand a dividend policy, its importance and determinants are influenced by such a term. Basically, a dividend refers to a reward that is paid to stockholders for investing in a company (Sorbe, Gal, Nicoletti & Timiliotis, 2019). Such dividends tend to assume various forms like cash, property, stock and additional shares. Paying dividends is not mandatory but the board of directors must first approve in advance the dividend payment prior to its payment. Nevertheless, the context dividend policies must be determined in relation to the company's other financial needs (Triani & Tarmidi, 2019).

Dividend policies tend to command significant attention in academic research concerning their relevance and importance. For instance, Kasahara and Orihara (2021) contend that dividend policies are instrumental in indicating a company's financial well-being. Some studies contend that a dividend policy is vital because it has an important bearing on the future financial well-being of a company (Di Giuli, Karmaziene & Sekerci, 2021; Vochozka, Machová & Sedmíková, 2021). As a result, it is crucial to ensure that dividend policies are systematically developed and implemented.

It is the duty of any company to ensure that it has a sound dividend policy. As a result, three basic components or features have been suggested to highlight the vital aspects of a solid dividend policy. The initial component was identified as being able to pay lower dividends during the initial stages (Reppen, Rochet & Soner, 2020). Such

is derived from the concept that paying dividends is vital for motivating and luring shareholders to continuously invest their funds into the business even when the company is still small (Akhalumeh & Ogunkuade, 2021). However, studies recommend that such dividends must be relatively small to match the company's size and income-generating capacity (Shafai et al., 2019; Verga Matos, Barros & Miranda Sarmento, 2020).

The second component of a solid dividend policy is identified as being in a position to gradually increase dividends (Trong & Nguyen, 2020). Supporting studies contend that dividends paid must be structured according to the company's performance, size and growth (Triani & Tarmidi, 2019). Such actions are commendable because they help in boosting shareholders' confidence (Trong & Nguyen, 2020).

The final aspect is stability and studies reckon that it is another important aspect of a solid dividend policy (Sorbe, Gal, Nicoletti & Timiliotis, 2019). Companies that can survive in any market must be capable of providing stable dividend returns to their shareholders. Eventually, this is essential as it aids companies not only in gaining their investors' interest but also in the retention of their shareholders. Both benefits will work towards enhancing the companies' share market values (Triani & Tarmidi, 2021).

Types of Dividend Policy

Given the above description of dividends, it therefore relatively easy to define and understand what is a dividend policy, its existing types, importance and determinants. According to Hardjopranoto (2006), a dividend policy is a detailed outline that sets the parameters for delivering dividends to shareholders.

According to Rashid and Rahman (2008), companies usually follow a specific pattern when paying dividends. Such patterns are related or widely known as forms of dividend policies. There are four distinct types of dividend policies and these are:

1) Stable dividend policy: This is a dividend policy involving the periodic payment of a fixed amount of dividends to shareholders (Trong & Nguyen, 2020). One of the crucial features of this type of dividend policy is that the periodic dividends are constant and do not change. Therefore, the shareholders

will receive the same amount of dividends irrespective of whether the company made a profit or loss. Such is of huge benefit to shareholders in the event that the company has made a loss but to their disadvantage when the company has made huge profits.

2) Regular dividend policy: This form of dividend policy is distinctively different from a stable dividend policy. That is, a regular dividend policy entitles shareholders to a specific proportion of the company's profit (Silalahi et al., 2021). However, Athari (2021) contends that the major difference is that the declared percentage dividends will vary according to the company's profit levels. is allowed as dividends to the. For instance, shareholders are entitled to receive more dividends when the company has made substantial gains or profits and fewer dividends in the event that losses have been incurred. Studies are in huge support of this form of dividend policy and a notable number of them cite that it is vital for creating goodwill (Ariwinata, Satya & Badjra, 2021; Farooq, & ElBannan, 2019; Nystrom, 2021; Sari, 2021).

3) Irregular dividend policy: This form of a dividend policy does not guarantee dividends to shareholders and for such reasons, it is widely known as a changeable policy (Ariwinata, Satya & Badjra, 2021). This implies that companies may decide not to pay or pay dividends to their shareholders. The main influencing factor is that the board of directors must approach dividend related decisions based on their priorities (Ariwinata, Satya & Badjra, 2021).

4) No dividend policy: This form of a dividend policy simply entails that companies do not provide dividends to shareholders but rather opt to retain the accumulated profits for purpose of funding other projects (Nystrom, 2021). Basically, companies with such policies will not be having any desire to declare dividends to their shareholders. Studies have criticised such policies citing that it discourages investments aimed at generating and enhancing sustainable income (Akhalumeh & Ogunkuade, 2021; Shafai et al., 2019; Trong & Nguyen, 2020). However, other studies contend that a no dividend policy is important for business growth (Akhtar, 2018; Sari, 2021).

The above-mentioned dividend policies are available for use to a company and companies are free to choose any dividend policy they desire. Nevertheless, it is vital to note that such decisions are based on a number of key factors. One of the key factors

relates to the company's objective for Comim (2021) notes that companies aspiring to expand operations and grow are best advised not to issue dividends. On the contrary, companies attempting to boost their sustainable income levels will engage in dividend payout activities (Akhtar, 2018; Nystrom, 2021; Sari, 2021). Other activities or strategic goals like image and/or goodwill enhancement are linked to dividend policies (Comim, 2021). Hence, whatever strategy the companies adopt, must be connected to its dividend policies. For such reasons, dividend policies are important and designed according to the company's goals, vision and mission.

Key Benefits of Dividend Policies in the Financial Sector

The financial sector can benefit a lot from the adoption of dividend policy and the benefits are immense and diverse. Studies do consider such benefits as considerable and this is widely covered in several academic studies. For instance, contend that a dividend policy is vital for capital structure purposes. This aligns with study suggestions given by Dereli and Topak (2018) depicting that a dividend policy is important for capital budgeting purposes. This works by dividing the company's net earnings into dividends and retained earnings. The latter is used for providing funds for funding long term investment projects. In other words, retained earnings are used to fund growth-related activities and dividend policies have an influence on such activities. The former mostly involves cash payments and companies will pay dividends so as to fund their investment activities (Rashid & Rahman, 2008). In most cases, equity and debt are used to fund growth and/or investment-related activities.

Dividend policies are vital for quite a significant number of reasons. The notable reason relates to the income streams shareholders will obtain. Such is supported by studies contending that dividend policies entitle shareholders to income streams in the form of cash payments (Hardjopranoto, 2006; Singh & Tandon, 2019).

Hardjopranoto (2006) outlined that a dividend policy is instrumental in influencing institutional investors. This is because providing dividends to investors serves as a reward commensurating their investment efforts. As such, this is based on the concept and analysis of ideas stating that paying dividends cayuses the company to lure more and sound investors capable of leveraging a significant amount of funds into the company (Houmani & Jhafari, 2014; Vochozka, Machová & Sedmíková, 2021). Such a benefit was also linked to dividend policy being used to attract investors

and build a good reputation and goodwill (Hardjopranoto, 2006). This entails that a dividend policy offers strategic benefits and financial institutions can use it to influence their financial positions, acquisition of financial assets and invest in new financial products and services.

A dividend policy has been linked to business survival during complex and challenging situations (Reppen, Rochet & Soner, 2020). One of the key areas that have been undermining the performance and operational capacity of financial institutions is a financial crisis. The existence of dividend policy is significantly presumed to aid organisations like financial institutions in dealing with a financial crisis and thus, helping them to survive. This is because a dividend policy can accommodate asset expansion measures during a financially difficult time (Vochozka, Machová & Sedmíková, 2021). Moreover, a dividend policy offers an accurate valuation of the company's performance during a financial crisis as the dividends are adjusted to the prevailing market conditions. That is, expectations that prices will increase will be correlated with possibly similar changes in valuations. The existence of potential valuation discrepancies during difficult times can be dealt with using a dividend policy.

There are also suggestions denoting that there is a widespread agreement among corporations to adopt a dividend policy. That is, a dividend policy is widely preferred because of its capacity to avoid illiquidity problems. Di Giuli, Karmaziene and Sekerci (2021) contend that a dividend policy can be used in determining whether the company has adequate funds available for investment purposes and undertaking operations. Hence, it is in line with such reasons that a dividend policy is widely considered vital for future prospects.

The provided benefits of having a dividend policy in the financial sector serve important purposes pertaining to equity valuation. According to Triani and Tarmidi (2021), a dividend policy is used in determining the value of stocks. Such a task is further linked to organisational efficiency and growth (Sorbe, Gal, Nicoletti & Timiliotis, 2019). This entails that having a dividend policy plays an essential role in supporting companies' efficiency and growth initiatives.

There are studies linking dividend policies to the stabilisation of the market value of shares. For instance, Kasahara and Orihara (2021) argue that a dividend policy

equates to satisfaction on the part of the company's shareholders. Such an action causes the shareholders to hold their investment position in the companies (shares) fo0r a longer period. This eventually stabilises the companies' stock prices.

In other studies, a dividend policy has been linbked to the creation of a market for debentures and preference shares (Di Giuli, Karmaziene & Sekerci, 2021; Vochozka, Machová & Sedmíková, 2021). This is based on the idea that companies with sound dividend policies are able to issue debentures and preference shares so as to borrow money (Reppen, Rochet & Soner, 2020).

There is an element of companies benefiting from a dividend policy in the form of the degree of control gained. Reppen, Rochet and Soner (2020) contend that dividend policy assists companies in exercising control over their finances. In another circumstance, benefits like raising surplus funds were also linked to a dividend policy (Akhalumeh & Ogunkuade, 2021). This is because it is presumed that a company capable of having a dividend policy is well-positioned to raise additional funding (Triani & Tarmidi, 2019). Besides, a dividend policy allows a company to build a good image and reputation itself. Lastly, fewer taxes are levied on dividends as there are viewed to be a form of capital gains (Trong & Nguyen, 2020).

Key Benefits of Dividend Policies as a Source of Information in Decision-Making

One of the key aspects of dividend policies relates to their ability to offer information about the business' performance. Supporting evidence shows that dividend policies influence the relevance of the reported financial details (Dwijayanti & Masdupi, 2021; Oliveira & Juca, 2021). This is because reported financial information serves little or no purpose when it is not relevant to decision making and other organisational and non- organisational activities. Besides, Paragraph (78) of IAS 32 contends that the reported information must cater for the decision-making needs of various financial information users. As can be noted, financial information users range from managers, shareholders to stakeholders and each of these users has a distinct preference and taste for reported financial information. For instance, organisational managers rely on the relevance of the published information to ascertain the performance of their department and that of the organisation overall. Bag and Dani (2018) reckon that managers use reported financial information as part of performance

evaluation procedures to evaluate whether employees' performance has been within the desired levels.

In another study, Hajering (2018) contends that failure to maintain performance standards and evaluation measures can direct the organisations towards a path of failure. Such observations entail that performance measurement and evaluation are instrumental in ensuring that the organisation is working towards achieving set targets in line with the organisation's goals and vision. Besides, other vital organisational activities such as growth and development are linked to the internal performance of the organisation. This can be supported by ideas stating that the internal success of the organisation fuels organisational success as it provides funds and resources required to expand into new markets (McInnis, Yu & Yust, 2018).

Besides, serving new markets is a function of existing and future resources and funds accumulative capabilities of the organisation. Given that organisational activities are in constant competition for funds and resources, scarce resources coupled with poor performance is enough to dissuade managers from investing in new markets. That is, organisations must be in possession of adequate funds and resources to support market development and this is influenced by the extent and nature of the organisation's profitability. Moreover, Magnan, Menini and Parbonetti (2015) contend that new products are developed on the verge of successful organisational performance because the feasibility of undertaking such activities will be relatively high. All these ideas depict the importance of using reported financial information to measure and evaluate organisational performance. Hence, it is vital to suggest that organisational managers make and benefit significantly from the availability of relevant information concerning the organisation's activities.

Given that the diversity of users of financial statements is huge, catering for each specific user's interests is vital in determining how it influences their decision-making. This is because decision-making is a reflection of behaviour and attitude and such information can be used by organisations to gauge their strategies and determine the best course of action. As a result, the other major user of reported financial information is the owner of the business who can greatly benefit from a dividend policy when they use it to make decisions about the organisation. This is because a dividend policy is essential for providing an accurate understanding of the organisation's value (Mujino & Wijaya, 2021).

Investors are also among the users of reported financial information and the application of a dividend policy enhances the accuracy of their decisions. Given that a dividend policy can be used in conjunction with other sources of information like a balance sheet, the significance of investors being affected and benefit from the accurate reflection of what is due to them and determines whether they will continue extending funds to such an organisation.

Meanwhile, there are vast and substantial decisions that can be made from using a dividend policy and such decisions pertain to several functions. For instance, investment and financial analysis activities are undertaken by investors are linked to the quality of reported financial information, of which a dividend policy plays a key role in such activities (Lu & Zhang, 2020; Rizki, 2019).

Governments and other bodies can benefit from a dividend policy as they obtain accurate market values of the business' activities, assets and liabilities (Aryani & Patrisia, 2021). In such cases, they can formulate appropriate strategies either for tax purposes, employee welfare or regulatory purposes. The basis of making accurate decisions in their cases will be greatly influenced by the extent to which a dividend policy is being used. Furthermore, HK (2020) and Bašová (2019) contend that the information provided from dividend policy prepared reports is highly prudent and that third parties can use such information to make informed decisions. Another study by Dwijayanti and Masdupi (2021) also highly that the relevance and validity of a dividend policy prepared information is of huge significance to third parties. Therefore, having a dividend policy offers immense benefits to internal individuals within the organisation and those outside the organisation. This does not exclude organisations that can use such information to determine how they will financially and materially relate with the organisation. Therefore, it is commendable for organisations to adopt dividend policy principles for the benefit of the majority parties.

Integrating accounting and finance with information systems is important for enhancing the quality of reported financial information (Bewley, Graham & Peng, 2018; Prodanova et al., 2019). A study conducted by Georgiou (2018) notes that information systems have functions that assist in improving the data capturing, storage, processing and distribution process. This helps to reduce errors and ensure that accurate information is recorded and processed for use. Consequently, organisations can make correct and rational decisions.

Another study by He, Wright and Evans (2018) noted that inherent information systems functions can be integrated with programmed accounting functions that allow information to be analysed and reported in different formats. This enhances the quality of reported details and ensures that the information is understandable.

A study by Prodanova et al. (2019) highlights that information systems can be programmed to ensure that accounting reports are prepared under the required accounting standards like international IFRS. This is vital for maintaining good corporate governance practices and trust and operational transparency and reporting (Bewley, Graham & Peng, 2018; Prodanova et al., 2019). With several problematic issues of lack of transparency, the importance of having sound and reputable financial reporting systems becomes of huge importance. Besides, propositions were made following a series of corporate scandals like the Enron saga that integrating Accounting and finance with information systems helps in eradicating corporate scandals and misconducts (Bewley, Graham & Peng, 2018; Prodanova et al., 2019; Yao, Percy, Stewart & Hu, 2018). Such has been a prominent issue in the banking sector and hence, adopting information systems in accounting and finance becomes an essential function. In addition, users of financial statements tend to benefit substantially by using quality financial reports prepared using information systems (Haswell & Evans, 2018; Sellhorn & Stier, 2019). Investors, creditors and other stakeholders benefit from high-quality financial reporting in structuring their dealings with the banks. Thus, it is important to note that information systems play a vital role in enhancing the quality of reported financial details about an organisation.

Information system developments linked to accounting and finance are linked to improvements in financial performance (Bewley, Graham & Peng, 2018; Prodanova et al., 2019; Yao, Percy, Stewart & Hu, 2018). Though studies are still trying to establish both the relationship and degree of impact between accounting information and financial performance, prevailing ideas contend that they are unilaterally related (Ahn, Hoitash & Hoitash, 2020; Georgiou, 2018; Toluwa & Power, 2019). That is, there is a positive interaction between accounting information and financial performance. On the contrary, dividend policies are viewed as having intervening effects on the relationship between accounting information and financial performance (Toluwa & Power, 2019). However, contrasting arguments were raised regarding the direct connection between information systems and financial performance. For

instance, Moura (2018) argues that a dividend policy only serves to show information about the business' financial performance. This means that accounting information only provides financial performance details, hence, corrective measures or strategies undertaken are the ones responsible for causing the desired financial performance changes.

Related Studies on Dividends Paid

Studies analysing the connections or implications of dividend policies are vast. For instance, Mardiana and Setiyowati (2019) conducted a study aimed at analysing the relevance of a dividend policy. The study findings reported that a dividend policy is widely acceptable and caters for shareholders interests. Such observations were supported by the notion that a dividend policy highlights how much and when shareholders are to be rewarded for their investment efforts. However, it was suggested that proper and additional information is required when using a dividend policy and that this must be reinforced by proper disclosure of information pertaining to dividends payment methods used.

Korir (2019) conducted a study aimed at analysing the significance of reported dividends. Such a study was aimed at illustrating the benefits of using a dividend policy in financial institutions. As a result, the benefits were listed as encompassing aspects like proper valuation, performance evaluation and determination, avoiding risks and enforcing sound corporate governance practices. Their findings also emphasised the importance of using on financial institutions to make decisions and that such decisions affected several users of financial statements. Hence, it can be advocated that financial institutions must be adopted in organisations irrespective of some of its shortfalls.

Dwijayanti and Masdupi (2021) conducted a study entitled "The Role of The Quality of a dividend policy in Enhancing Investors' Decisions" aims to highlight the importance of a dividend policy in enhancing the decisions of investors as well as to determine the factors that affect the quality of accounting earnings. The study reached a set of conclusions, most importantly that investors in the Serbian Stock Exchange do not take into account the quality of accounting earnings when making investment decisions. The results of the study have shown that most of the high trading units have low-quality earnings. This study has reached several recommendations, the most

important of which is that investors should take the variable volatility factors into account and the age and size of the economic units as indicators of the quality of earnings.

Based on what has been stated so far, it becomes clear that the originality of the present article lies in its originality and it's distinguished from the previous studies in the sense it presents a broad presentation of the concept of the quality of accounting earnings and its impact on the financial reports of Serbian banks. Also, this study differs from previous studies in its settings in terms of the quality of accounting earnings of Serbian banks and the impact of that quality on the financial reports of these banks.

Suhandi's (2021) study demonstrated that a dividend policy is significantly linked to earnings persistence. That is, they indicated that using a dividend policy reflects the actual value of the business and aids managers in making rational decisions leading to improved performance and earnings. Chances of making irrational decisions affecting the performance of an organisation were ruled out when a dividend policy was implanted. Their ideas were mainly centred on justifying the use of a dividend policy citing that it enhances earnings. As such, this entails that relatively similar observations can be obtained in related financial institutions when a dividend policy is used to enhance the quality of reported financial information.

In another study by Rizki (2019), it is mentioned that social values and corporate social responsibility activities are highly and positively related to the application of a dividend policy. Bewley, Graham and Peng highlighted that stakeholders are reluctant to engage in activities with organisations that compromise their interests. Hence, the adoption of a dividend policy is seen as necessitating developments ensuring that stakeholders' interests are accurately disclosed in the financial statements and not compromised through activities that understate their value. Such pertains to the understating of liabilities and overstating of profits compromising the position and status of the organisation. Besides, there is no guarantee that decisions made and actions taken will sustain stakeholders' interests when they are based on inaccurate information. Thus, a dividend policy serves to address such issues and thereby safeguard stakeholders' interests.

In a study by Bašová (2019), it is highlighted that a dividend policy is essential for making sound investment decision-making. The importance of such contributions is unquestionable as investors are accurately regarded on the strategy they can assume. Both assets and liability values are well reflected enabling investors to effectively forecast the value of their returns and related risks involved in making such investments. Their results were based on examinations made on the Australian agricultural sector. Hence, this can affect the validity of their findings were applied in the banking sector.

Meanwhile, Moura (2018) asserted that a dividend policy's implementation is in phasing and such phases include the normative Fisherian phase of accounting. As noted in previous examinations made in this study, dividend policy stages were instrumental in defining its applications in business. This also encompassed its definition which has been at the centre of many arguments. For instance, some studies consider that a dividend policy can be influenced by managers' perceptions (Bag & Dani, 2018; Oliveira & Juca, 2021). Some studies also argue along similar lines but state that there is no warranty that applying a dividend policy will enhance organisations performance and growth initiatives (Hajering, 2018; Mujino & Wijaya, 2021).

There are also vital ideas that connect a dividend policy to another important aspect that influence not only the disclosure of information but other important corporate indicators like performance and value. For instance, Georgiou (2018) outlined that a dividend policy together with other accounting standards is of high worthiness to users and standard setters. This is because users of a dividend policy will use them to gauge the performance of the organisation, integrity, legal conduct and corporate governance practices carried out by such an organisation. Other aspects like image and reputation can also be linked to a dividend policy as studies denote the importance of a dividend policy in reflecting the actual value and capacity of the business in meeting its obligations to shareholders (HK, 2020; Lu & Zhang, 2020).

Oliveira and Juca (2021) demonstrated that a dividend policy plays an instrumental role in the irreducibility of value constellations to market prices. Such observations were made with regard to entity-specific and market-based aspects of a dividend policy. Additionally, the findings of such a study highlighted that the potency of reducing deficiencies and issues posed were relatively low when a dividend policy

was used. This entails that performance, operational and debt-related problems are evitable when a dividend policy is brought into context.

Bag and Dani (2018) related the importance of a dividend policy to auditor task-specific activities. Their arguments were centred on the notion that the application of FVA can hinder fraud as recorded values are recorded in relation to existing market prices and accounting reporting standards. Besides, they emphasised the importance of using accounting standards linked to a dividend policy to enhance financial reporting and disclosure. It is such efforts that are commendable and can presumably lead to improved financial reporting quality. Similar remarks were made by

Prodanova et al. (2019) in their quest to examine methods used in obtaining audit evidence at dividends measurement. They noted the importance of following accounting standards, the disclosure of accurate information about recorded transactions in relation to their market values and other key benefits of using a dividend policy leading to improved auditing activities. Such details exhibit that there is a significant interaction between a dividend policy and the disclosure of information and how such information aids in enhancing audit effectiveness.

The above examinations have not been connected to dividends. Hence, this study adds to the existing literature by addressing such matters. Meanwhile, there are some studies that provide insights into the connection linking dividend policies to dividends. For instance, Goncharov and van Triest (2011) conducted a study aimed at analysing if fair value adjustments influence dividend policy using a sample of 4424 Russian public companies listed on the Russian Trading System. The applied data spanned from 2003 to 2006. Their findings established that there is a negative relationship between a dividend policy and dividend changes. In other words, they concluded that there is no empirical support evidencing that an increase in declared dividends causes an increase in dividends as a bilateral connection was established. Hence, expectations are that banks' decisions to apply a dividend policy will hinder their capacity to pay dividends.

A study by Hajering (2018) contends that obtaining, abnormal returns should not be possible using a dividend policy is relatively difficult because of the semi-strong market efficiency assumption. This entails that the possibility of amassing huge profits needed to pay dividends are relatively slim. This possibly indicates a negative

interaction between performance and dividends which this study seeks to explore further.

Pereira and Tavares (2015) highlighted that changes in dividends paid are a function of previously paid dividends. Additionally, they outlined that the higher the amount or level of previously paid dividends, the fewer dividends will be paid in the forthcoming period. Such an observation needs further examination as they upheld the idea that there is a negative interaction between previous dividends and dividends paid.

Sikalidis and Leventis (2017) conducted a study that analyses the effects of the impact of unrealized FVA on 243 companies listed on the ASE' dividend policy between 2006 and 2012. It was observed that improvements in size, performance and cash resources had positive effects on dividends. However, an increase in financial leverage was noted to be having an adverse effect on dividends. This study extends their findings in analysing how banks performance and leverage or liabilities will impact Serbian commercial banks.

All these examined ideas do show that there is a huge empirical gap that needs to be examined as to how a dividend policy influences dividends as a measure of financial reporting quality. Such ideas have been lacking empirical verifications, especially concerning commercial banks. Hence, by addressing such issues, this study has theoretical and practical contributions embedded in it.

Table 1.

Summary of literature review

Author	Variables	Methodology	Results
Pereira and Tavares (2015)	Previous dividends, Operating Income, Net profit per share Earnings, Financial autonomy, Dividend Yield, Market value, and Dimension.	Multiple linear regressions to the non-financial listed companies on the Euronext Lisbon, between 1997 and 2011.	The higher the amount or level of previously paid dividends, the fewer dividends will be paid in the forthcoming period.

Sikalidis and Leventis (2017)	Size, cash, debt-to-asset ratio, fair value adjustments and ROA.	Applied panel data estimation on 243 companies listed on the ASE' between 2006 and 2012	Improvements in size, performance and cash resources have positive effects on dividends. An increase in financial leverage has an adverse effect on dividends.
HK (2020).	Ownership structure and dividend policies	Path analysis of 50 BSE listed top companies.	It is found that shareholding by minority shareholders, future growth opportunities, and leverage significantly influence the dividend decisions of the sample firms. In the current study, it is also found that free cash flows have been distributed as dividends, which indicates there is no agency conflict between management and shareholders. Whereas, there is evidence of agency issues between minority shareholders and majority shareholders.
Hajering (2018)	Dividends paid, ROA, total assets, liquidity, and leverage.	GMM	Obtaining abnormal returns is possible using a dividend policy because of the semi-strong market efficiency assumption.
Bag and Dani (2018)	Financial performance, dividend policy, funding decisions	Path Analysis Model on 40 companies	Dividend policy has a positive and significant

	and investment decisions.	between 2013 and 2015.	effect on firm value and financial performance.
Moura (2018)	Profitability, CAPEX, capital structure, and size.	Wilcoxon signed-rank test, T-test OLS and regression analysis.	Positive interaction between CAPEX and profitability, capital structure, and size. A dividend policy's implementation is in phasing and such phases include the normative Fisherian phase of accounting
Bašová (2019),	Dividend yield, Net income, EPS and payout ratio.	Descriptive analysis of annual data between 2008 and 2017.	Positive interactive effects between dividend yield, net income, EPS and payout ratio. A dividend policy is essential for making sound investment decision-making.
Rizki (2019),	Social values, corporate social responsibility and dividend policy.	A survey of 12 companies involving the use of the Sobel Test and panel Regression.	Social values and corporate social responsibility activities are highly and positively related to the application of a dividend policy.
Korir (2019)	Share prices, dividends yield, return on income, total assets, leverage, growth.	Panel OLS	Dividend policies are important because of proper valuation, performance evaluation and determination, avoiding risks and enforcing sound corporate governance practices.

			Positive interactive effects between dividends yield, return on income, total assets, leverage, growth, and share prices.
Suhandi (2021	Firm Value, EPS, capital, institutional Ownership, dividend yield, company growth	Panel OLS	institutional Ownership, dividend yield, company growth have a positive effect on firm value, while EPS has an adverse effect on firm value.
Dwijayanti and Masdupi (2021	ROA, dividends paid, fair value adjustments, total investments, total assets, debt ratio, earnings per share.	Fixed and random effect models	Investors on the Serbian Stock Exchange do not take into account the quality of accounting earnings when making investment decisions. The results of the study have shown that most of the high trading units have low-quality earnings.
Oliveira and Juca (2021)	Dividend policy, value constellations and market prices.	A systematic literature review	Demonstrated that a dividend policy plays an instrumental role in the irreducibility of value constellations to market prices

CHAPTER III

Theoretical Framework

Introduction

This chapter is dedicated to the examination of the underlying dividend policy theories with the goal of ascertaining the determinnatrs of dividend policy. As a result, this chapter focuses on the implications of the residual theory of dividend policy, dividend valuation model, gordon growth model, and modigliani and miller's dividend irrelevancy theory, and ascertains their validity when applied in the context of Serbian commercial banks.

The Residual Theory of Dividend Policy

The study applied the residual theory in determining and analysing the determinants of dividends policy. This is because the residual theory makes a realistic consideration that companies have the discretion to determine whether they want to issue dividends or not (Smith, 2009). Furthermore, this theory considers the significance of retaining profits for improving the business' operational activities (Smith, 2009). This is because not all profits are paid as dividends as companies can change their strategies based on the business, market, industrial or economic outlook. Such is a vital factor for banks as they often adjust their operational scales and activities in response to changes in market forces, economic and structural outlook.

The residual theory presumes that dividend policy does not affect share prices or the shareholders; wealth (Baker & Weigand, 2015). As a result, this theory is not applied in valuing a firm and hence, it is classified under irrelevant theories of dividend policy (Kumar & Waheed, 2015). The other feature of the residual theory is that it presumes that dividend policies are merely a part of the financial decision because the earnings available may be retained in the business for reinvestment. This implies that available funds can be distributed as dividends in the event that they are not required in the bank. Therefore, the decision to pay dividends or retain the earnings is considered a residual decision.

The residual theory assumes that using external sources to raise funds is costly (Baker & Smith, 2006). This is because borrowing attracts the interest rate that banks

must pay and adds to their operational expenses. also, there are floatation costs that may be attached as the bank may be forced to raise mor5e than the required amount by issuing shares. This makes it easy to finance and cheaper to finance banking operations using retained earnings compared to issuing new capital. Furthermore, Smith (2009) contends that dividends will be paid only after using available profits for investment needs and such is known as the residual theory of dividend.

Given the above theoretical analysis, it can be noted that dividends are a function of profits made by the bank that further determine how much profits will be retained to support operations or used to pay dividends. This depicts the initial model relationship between the first two variables that will be analysed in this study. Secondly, this theory addresses how leveraging bank operations by borrowing can have an influence on dividends paid. This is because comparing financing bank operations using borrowed funds and issuing new capital, both prove to be expensive compared to retained earnings, especially when floating and interest rate costs are involved. Both the banks' future capacity to pay dividends and dividends paid per individual is reduced. Thirdly, retained earnings and paying dividends significantly influences the banks' liquidity positions. In other words, the banks' liquidity position is depleted when banks pay dividends, floatation and interest rate costs by reducing the banks' income generating capability. Such funds could have been expended on other productive activities, thereby generating more profits used to pay more dividends. This depicts that liquidity does influence the banks' dividend policies. Additionally, previously paid dividends will have both direct and indirect effects on banks' dividends paid.

All these mentioned variables have not been barely captured in estimating an econometric model capable of analysing how each variable influences dividends paid. Therefore, this study has managed to theoretically determine that dividends paid a function of bank profitability, leverage, liquidity and previously paid dividends. Therefore, the next chapter of the study looks at how these variables can be integrated into a model capable of analysing the distinctive effects of each variable on a combination of 10 commercial banks.

The Relevant Theories

There are three relevant theories used in describing dividend policies and possibly offer suggestions regarding the uinderlying factors influencing dividends. These theories are described in detail as follows;

The Dividend Valuation Model

The theory presumes that a company's share price is primarily determined by expected future dividends (Kudar & Sayilgan, 2021). As a result, the decision by shareholders to acquire share by paying a price equal to the company's current share price when the price matches the present value of dividends (future inflows). This is functionally descxribed using the following formula:

$$P_0 = D_0 (1+ g)/(r_e - g)$$

Where:

P_0 = The current ex div share price.

D_0 = Paid dividend.

r_e = the rate of return of equity.

g = the *future* annual dividend growth rate.

The above given formula denotes that any investing funding is a cost that entitles investors to dividends after a given period of one year. The potential ability of the dividends to gro over time are represented by g (growth rate) paid at time Time 1. According to Murtaza et al. (2018), the expression will remain valid so lonmg as the company does not change its dividend policy. Hence, the expression $D_0(1 + g)$ assumes that both the current and future dividends will grow at the rate of g as shown as follows;

$$P_0 = D_1 /(r_e - g) \text{ Where } D_1 \text{ is the Time 1 dividend.}$$

The major challenge with this theory is that dividends growth rates are not alwasys practically guaranteed. This aligns with propositions given suggesting that internal company activities can undermine the company's ability to pay dividends. Besides, better firm performance is not always gvuaranteed and requires companies to guard against unforeseeable meaures aginst risk and uncxertainties posed by external organisational circumstances. Some studies consider the growth g to be an arbitrary rate estimkated by companies (Al-Malkawi, Rafferty & Pillai, 2010; Livoreka et al.,

2014). Furthermore, changing a dividend policy will significantly influence the validity of this expression.

Regarding the appolication of this theory in addressing this study's pertinent issues, it is evident that dividends paid are sidelined. That is, the theory doies not acknowledge that previously paid dividends influence future dividends. Additionally, there are various factorts influencing dividenfs but are not embedded in this theory. Factors like firm size and performance are instrumental in determining dividends paid and hence, must be included in analysing dividend policies. The dividend valuation model is significantly based on the operational guideline of one assumption presuming that a growth in dividends g is constant (Frankfurter & Wood, 2002; Kudar & Sayilgan, 2021). Nonetheless, there are various assumptions applicable for such a theory to hold huge relevance in contemporary situation. Hence, the applicability of this theory is questionable on practical terms. Therefore, this study will focus on insighnts provided by the residual theory of dividend policy.

The Gordon Growth Model

The othjer theory that can be deployed in analysing the context of this study is the Gordon growth model. The Gordon growth model conbtends that there are underlying factors driving dividend growths (Lee et al., 2009). Propositions by Murtaza et al. (2018) shows that dividends are driven by what the company continuing doing more of the same. Such propositions entail that this is probable in the evenmt that there are neither losses undermining dividend growth trading breakthrough boosting dividend growth. For instance, a company can opt to invest more in assets or expanding operations by increasing the size of its capacity or growing in numbers.

Proponents supporting this theory also highlight that raising additional capital plays a vital role leading to an increase in dividends (Lee et al., 2009). Thus, leverage can been seen as influencing dividends. In such a case, one can consider that a company's leverage positions determines its capacity and extent to which it declares and pays dividends. In another study by Lee et al. (2009), it is noted that retained earnings also play a crucial rol;e in this matter. Hence, profit levels will go a long way in assisting companies to declare or pay more dividends. This implies that distributing all earnings as dividend hinders a company's ability to invest because its capital levels would have been significantly reduced. As a result, Murtaza et al. (2018) argues that such a case reduces a company's potential to make substantial profits in the future.

Alternatively, retaining more income thus, stands to boost capital levels and future investmenets kleading to increased profits levels available for paying dividends. Therefore, a company's profit levels significantly influences itrs dividend policy. These two cases can be illustrated by an expression where R is the rate that profits earned on new investment and b is the proportion of earnings retained as follows;

$$g = bR$$

Therefore, $(1 - b)$ will be the proportion of earnings paid as a dividend. More earnings retained will cause an increase in investment producing substantial profits allowing huge dividends because of more earnings retained (b). Thus, given that earnings at time 1 are E_1, the dividend will be $E_1(1 - b)$. therefore, the dividend growth formula is specified as follows:

$$P_0 = D_1 /(r_e - g) = E_1 (1 - b)/(r_e - bR)$$

Cases where no earnings are retained imply that $b = 0$, and hence, the present value of a perpetuity $P_0 = E_1/r_e$. This causes both the share price and earnings to remaion constant. The above expression represents a company's dividend policy and earnings paid out are represented by (1-b), and the retained earnings by b.

The major concern about this theory regading its implications on dividend policy relates to iots implications. For instance, some studies consider it as denoting how retained and paid earnings influence a company's share price (Al-Malkawi, Rafferty & Pillai, 2010; Frankfurter & Wood, 2002; Lee et al., 2009). On another note, the theory neglects other vital drivers of dividend policy and such factors should be included if realistic conclusions are to be given. Therefore, this study addresses such concerns by incorporating major drivers but still yet to be explored in the context of Sebian commercial banks in the form of bank performance, liquidity, levelge and previous dividends.

Modigliani and Miller's Dividend Irrelevancy Theory

The other vital theory that is applicable in analysing dividend poilicies is the Modigliani and Miller's dividend irrelevancy theory. According to this theory, dividend patterns are presumed as not having an effect on share values (Ahmeti & Prenaj, 2015). Studies often consider the implications of this theory as of huge significance. For instance, DeAngelo and DeAngelo (2006) assets that reducing

dividends paid and reinvest retained earnings causes a surge in futures earnings leading to an increase in future dividends. Investors have been seen as supporting such a move because of the increased present value of future dividends offsetting a decline in current dividends (Ahmeti & Prenaj, 2015; DeAngelo & DeAngelo, 2006; Frankfurter & Wood, 2002). Nonetheless, the feasibility of such a move is questionable as some studies consider that retained should be reinvested at the cost of equity if such an equilibrium is to be attained (Ahmeti & Prenaj, 2015; DeAngelo & DeAngelo, 2006; Frankfurter & Wood, 2002).

Four cases surropunding earnings were estrablished and presented as to how mthey influence dividends (Ahmeti & Prenaj, 2015). The initial case depicts that paying dividends using all the retained earnings would reduce future profits and dividends paid. This options reduces capital available for investment. The second option is similar to the Gordon growth model concerns to the investment of the earnings at the cost of equity. The theory assumes using half of the retained earnings to pay dividends will not affect the share price (Livoreka et al., 2014). As a result, the dividends in this case are regarded as irrelevant. The third case involves investing more retained eatrnings at the cost of equity. According to Murtaza et al. (2018), causes share prices to increase and hence, dividends in this case are regarded as relevant. Lastly, companies can invest retained eatrnings at the cost of equity but the challenge is that this leads to a decvline in share price (Ahmeti & Prenaj, 2015; Frankfurter & Wood, 2002).

In summary, the Modigiliani and Miller dividends irrelevancy theory offers available options companies can tap into to influence their share prices. In other words, the Modigiliani and Miller theory detasils out how dividends affect share prices and casn be extended to cases where companies need to assess the effectiveness of their dividend policies. Hence, it cannot regarded as providing insights into the possible factors influencing a company's dividend policy. Most notably, the Modigiliani and Miller theory is a retained earnings-dividends framework explaining how they interact to influence share prices. In such regards, it works better is providing details on how companies can safeguard their value by preventing a decline in share prices. Nonetheless, the importance of profitability attached in influencing dividends is of huge concern and cannot be overlooked in academic studies. Hence, the decision to include bank profit in analysing commercial banks' dividend policies is well justified.

Practical Considerations

Theoretical framrewortks serves as guideli8nes and many at times do not align with practical situations or ideologies. Such is the casew regarding the applied residual theory of dividend policy, dividend valuation model, gordon growth model, and modigliani and miller's dividend irrelevancy theory. According to Rochmah and Ardianto (2020), investors are not always convince of the practical implications pof theoretical framewortks like residual theory of dividend policy and dividend valuation model. This also aligns with similar propositions suggesting that several theiories require that simplied assumptions be utilised before they can be derived (Frankfurter & Wood, 2002; Livoreka et al., 2014). Some of the key assumptions relate to perfect information and no transaction costs assumptions influencing the validity of such theories. These assumptions are not valid in practical terms because there is no perfect information and companies are bound to incur transaction costs.

Meanwhile, there are practical matters issues underlying the residual theory of dividend policy, dividend valuation model, gordon growth model, and modigliani and miller's dividend irrelevancy theory concerning their applicability in determining factors influencing dividend policies. Firstly, Okafor and Chijoke-Mgbame (2011) asserts that there are signaling aspects embedded in dividend policies. This is because announcing dividends ivolves companies publicly releasing of information to market players. Both individual and company investors will react to such information causing share prices to change.

The extent to which such information affects share prices depended on the efficiency of the market conditions. as such, the market can either exhbit weak, semi-strong and strong efficient market conditions (Frankfurter & Wood, 2002; Livoreka et al., 2014). Each distinct market conditions has its own implications and deytermines how share prices will react to new information. But the problem ios that share markets will always be riddled by information asymmetry problems ands hence, information available to one company will not necessary be available to another company. However, vital ideas are derivable from both theories and a change in dividend policies can imply various things. For instance, reducing dividends entails that the company is conserving funds preparing for tough conditions in the future. Besides, shareholders can be affected by sudden changes in dividend policies (Raza et al., 2018).

There are other non-financial factors influencing dividend policies and these factors are not measurable using financial means. For instance, investors' sentiments and perceptions about the future potential of the company. In addition, investors may not trust company directors' justifications and forecasts for dividend cuts irreespectivbe of whether they have been open about a dividend policy or not and this affects share prices.

There are also legal constraints that influence a company's dividend policy. For instance, a company cannot declare dividends if it does not have distributable reservesbut such legal restriuctions are not highlighted by these four dividend policy theories.

Nonetheless, the importance of factors like liquidity, leverage and previously issued dividends influenbces key indicators influencing dividends paid and share price. The implications of these variables are not clearly illustrated by the provided theories and this calls for efforts to conduct empirical studies analyse the effects of these factors on dividends paid by companies. Therefore, the next chapter looks at the underlyinmg studies of the effects and determinenbts of dividend policies on decision making and the financial sector, especially commercial banks.

CHAPTER IV

Research Methodology

Introduction

This section of this study is dedicated to the description of procedures applied in analysing the determinants of dividend policy. Thus, this section looks at the applied unit root tests, data analysis procedures, model diagnostics tests, variable description and data sources.

Data Collection

The main objective of the study is to determine the determinants of dividends policy and analyse how leverage, bank performance, bank liquidity and previous dividends affect dividends paid among Serbian commercial banks. Hence, this implies that panel data collected from the Serbian commercial banks be used to analyse the relationship between how leverage, bank performance, bank liquidity and previous dividends affect dividends paid. As a result, annual time series data from between 2009 to 2018 were collected from Intense, Unicredit, Komercijalna, Societe, Raiffeisen, AIK, Erste, Eurobank, Postanska and Vojvodjanska OTP group was used for such specific purposes.

The reason why Serbian commercial banks were selected is banks it is to the researcher's knowledge that there are no studies examining the determinants of dividends policy in the context of Serbian commercial banks. Moreover, the combined effects of leverage, bank performance, bank liquidity and previous dividends on dividends paid need further assessment, especially in the context of banks in Serbia. This is because relatively similar studies are based in well-developed economies like that are different from Serbia. Hence, there is a need to conduct studies providing specific solutions capable of addressing the Serbian banking situation. Therefore, this study addresses such concerns thereby filling such empirical gaps and/or addressing related empirical problems by building an integrated model that analyses the combined effects of leverage, bank liquidity, bank performance and previous dividends on dividends paid by commercial banks.

Based on the established research problems, it is acceptable that efforts to analyse both the determinants and implications of dividend policy are subject to various contrasting arguments. Besides, studying the determinants of dividend policies in financial institutions remains a relatively underexplored area that demands significant academic attention. Besides, Paoloni, Paolucci and Menicucci (2017) assert that the quality of reported financial earnings can be analysed by comparing changes in dividends paid, but there are limited studies that apply secondary data coupled with robust quantitative techniques in analysing such changes.

Additionally, previous dividends are an essential aspect that influences how much dividends will be paid in both the current or future periods (Almeida, Pereira & Tavares, 2015; Goncharov & van Triest, 2011). But the influence of previous dividends is widely neglected in academic studies. However, there is a general consensus that factors like leverage (Almeida, Pereira & Tavares, 2015; Goncharov & van Triest, 2011), bank liquidity (Mamaro & Tjano, 2020; Sikalidis & Leventis, 2017 Mamaro & Tjano, 2020; Sikalidis & Leventis, 2017) and performance (Mamaro & Tjano, 2020; Sikalidis & Leventis, 2017) significantly influence dividends paid. Nonetheless, there is a lack of empirical support to validate such ideas, especially when (1) both variables' effects are combined together to build an integrated model and (2) the validity of such propositions are tested in the context of other countries like Serbia. Therefore, it remains precisely to be known how leverage, bank performance, bank liquidity and previous dividends affect Serbian commercial banks' dividends paid. Thus, the intended panel data models will help in addressing these identified research problems.

Variable Description

Efforts to analyse the use of fair value accounting to enhance the quality of financial information were made possible by combining the influence of the variables dividend paid, bank performance, bank liquidity, fair value level 1 liabilities, and previous dividends. These variables were used to estimate the Johansen cointegration test and the Granger causality test. In addition, the impulse response functions were also estimated using these variables. The next section defines the variables and examines their related connections between the dependent variable dividend paid and the independent variables bank performance, bank liquidity, fair value level 1 liabilities and previous dividends.

Dividend Paid

The idea of investors getting returns from investing in a business is of significant importance. Studies reckon that investors are subject to investing in a business on the presumption that they obtain higher returns commensurate with the time and opportunity cost of investing in the business (Budagaga, 2020; Oloruntoba & Adeleke, 2018). Businesses tend to declare dividends that represent returns from investing in a business. In this study, ideas were derived from previous related studies suggesting that the quality of reported findings influenced by a dividend policy can be analysed in terms of the reported dividends (Johari, Chronopoulos, Scholtens, Sobiech & Wilson, 2020; Nadeem, Bashir & Usman, 2018). This entails that changes in the dividend paid are a reflection of the quality of the reported financial information as highly information is positively correlated with high performance (Olarewaju, Migiro & Sibanda, 2019).

Alternatively, dividend policy can be said to improve the quality of reported financial gains that businesses will use to pay dividends following a subsequent improvement in organisational performance. Such observations denote the existence of indirect interaction between the quality of financial statements and the dividend paid in such a way that high-quality financial information leads to improved performance which causes businesses to declare and pay dividends. Hence, dividends paid represented a dependent variable measuring the effects of previous and other bank-specific variables.

Bank Performance

Bank performance can be measured using different indicators. However, indicators like return on assets (ROA), return on equity (ROE) and net interest margin (NIM) are widely used as proxies of bank performance (see Ali & Puah, 2019; Kirakul, 2019; Saif-Alyousfi, 2019). The decision to use a particular indicator depends on the related bank's main income-generating activity (Ali & Puah, 2019) through NIM is considered to be a significant generator of bank profits (Le & Ngo, 2020). In some contexts, ROA is widely used because of its capacity to reflect managers' effective ability to generate revenue from using the bank's assets (Usman & Lestari, 2019). ROA was used in this study to measure bank performance because related studies used the same indicator (Ali & Puah, 2019; Le & Ngo, 2020). Additionally, the variable ROA was tested for unit roots and discovered as having no unit roots compared to the

variables ROE and NIM. Thus, making ROA more suitable for computing results that are free from spurious issues.

The connection between ROA and dividends paid is presumed to be positive (Usman & Lestari, 2019) though it was also established to be negative (Sikalidis & Leventis, 2017). That is, an increase in bank performance provides banks with adequate funds to issue shareholders with dividends and lure additional funding from existing and potential investors willing to reap from the attractive dividends offered by the banks (Kirakul, 2019). However, such a positive interaction is debatable and some studies often consider that improvements in bank performance can actually be negatively related to both declared and issued dividends. For instance, propositions by the clientele theory suggest that several investors do not usually prefer higher dividends but instead prefer retaining earnings so as to avoid paying huge sums of tax (Mamaro & Tjano, 2020). Moreover, Mamaro and Tjano contend that businesses may want to pay lower dividends to maximise share prices. Therefore, the study expected that an increase in bank performance will adversely cause banks not to issue more dividends.

Bank Liquidity

Bank liquidity is often taken to imply several things. For instance, El-Chaarani (2019) defines liquidity as the availability of funds to meet short-term obligations. As a result, a liquid business has the necessary funds to meet such short-term obligations. Liquidity can also be defined in terms of assets that can easily be converted to cash (Sahyouni & Wang, 2018). The study reported using the first liquidity definition Liquidity is of huge essence to banks and affects banking indicators. Ali and Puah (2019) assert that liquidity is crucial for sustaining operations and ensuring that banks have adequate funds to meet obligations when they are due.

Creditors must be paid on time to avoid compromising relationships with creditors and maintain a positive image (Mamaro & Tjano, 2020). Most importantly banks have to be high liquidity so as to meet rising customer demands for savings and time deposits. Failure to do so causes banks to lose customers to other banks as customer satisfaction declines. Meanwhile, bank liquidity is in some cases used to engage in some income-generating activities causing banks to focus on getting higher returns from such projects or assets. Thus, may be reluctant to pay dividends, especially when they consider the opportunity cost of doing so is huge and entails

losing significant revenue from such income-generating activities. It is in that regards that an increase in liquidity creates an avenue for banks to invest in high income-generating assets and projects. Hence, funds available for declaring dividends will be reduced and this implies that there is a negative interaction between bank liquidity and dividends paid.

Bank Leverage

According to Houmani and Jhafari (2014), leverage refers to the use of borrowed funds in the form of debt or liabilities to undertake a project or an investment. Hardjopranoto (2006) contends that leverage is more beneficial when used for investment purposes and increasing the value of the company. Given such cases, a high dividend payout entails that for companies to maintain their optimum capital structure, they have to apply a higher debt to finance their investments (Hardjopranoto, 2006). Hence, leverage has a positive effect on dividends paid by banks and such a positive relationship was expected in the context of Serbian commercial banks.

Previous Dividends

Previous dividends refer to dividends previously issued in a prior year or several years back. Previous dividends issued can possibly indicate the possibility of current and potential investors getting huge returns from their investments. Studies consider that high previous dividends tend to reduce the need and obligation for companies to pay more dividends since they would have cleared any outstanding dividends (Almeida, Pereira & Tavares, 2015). Hence, this entails that there is a negative interaction between previous dividends and dividends paid. Such a negative relationship was expected in this study. Table 2 provides a summary and variable description and expected relationships.

Table 2.

Summary and variable description and expected relationships

Variable type	Variable	Measure	Expected impact	Supporting reference
Dependent variable	Dividends paid	Refers to dividends paid to shareholders for investing money into the banks. Dividends paid were measured as an absolute currency number. The variable was used in related previous studies.	-	(Goncharov & van Triest, 2011).
Independent variables	Bank performance	Return on total assets ratio indicates how well a company's investments generate value, making it an important measure of productivity for a business. ROA=net income/ total asset.	+/-	(Mamaro & Tjano, 2020; Sikalidis & Leventis, 2017)
	Bank liquidity	Cash in hand and bank deposits with other banks	-	(Mamaro & Tjano, 2020; Sikalidis & Leventis, 2017)
	Bank leverage	Measured as a number in terms of total debt liabilities total assets.	+	(Hardjopranoto, 2006; Houmani & Jhafari, 2014).
	Previous dividends	Refers to changes in dividends paid between two periods. Previous dividends paid were measured as an absolute currency number. The variable was used in related previous studies.	+	(Almeida, Pereira & Tavares, 2015; Goncharov & van Triest, 2011).

Descriptive Statistics

Descriptive statistics were computed using the variables in their logarithmic forms (see Table 3). A high mean value of 2.227 was established for the bank's leverage compared to other variables DP, BP. BL and DP in natural form. This suggests that there were relatively high registered values concerning the banks' liabilities. This can be supported by the related mean value of 2.227 in logarithm form.

The computed standard deviation in log form shows that there were high variations in the banks' liquidity positons as denoted by a higher value of 0.704.

Nevertheless, log form deviations suggest that the variable BLV had elastic responses while the variable BL had inelastic responses to inherent changes in their variable elements. The computed skewness values in log form depict that the variables DP and PD were positively and substantially skewed as noted by their respective values of 2.664 and 1.851, respectively while the variable BP, BL, BLV, were negatively and substantially skewed as noted by its skewness value of -3.980, -0.391 and -6.627, respectively. The computed kurtosis values show that the variables BLV, BP, BL, DP, and PD were too peaked. Both their skewness in logarithm form also supported this observation as evidenced by their respective values of 48.079, 24.728, 3.548, 8.644, and 5.598.

Table 3.

Variables' summary statistics in natural and log form

	Data in log form				
	LDP	*LBP*	*LBL*	*BLV*	*PD*
Mean	0.080	0.113	-0.600	2.227	0.125
Std. dev	0.233	0.025	0.704	0.302	0.260
Minimum	0.000	-0.158	-2.669	-0.150	-0.373
Maximum	1.099	0.056	1.440	2.294	1.022
Skewness	2.664	-3.980	-0.391	-6.627	1.851
Kurtosis	8.644	24.728	3.548	48.079	5.598

PD=Dividends Paid; BP=Bank Performance; BL=Bank Liquidity; LV=Leverage; PD=Previous Dividends

Methodology

Given the above-mentioned problem, it, therefore, becomes apparent that there is a connection between leverage, bank performance, bank liquidity, previous dividends and dividends paid that remains to be tested. Such ideas reveal that dividends paid will change with respect to changes in leverage, bank performance, bank liquidity and previous dividends. Given such cases, it was considered that dividends paid (DP) are a function of bank leverage (BLV), other factors like bank performance (BP), bank

liquidity (BL), and previous dividends (PD). Such is represented using a functional form formulated as follows;

DP = F (BLV; BP; BL; PD) …………………………………………...(1)

The desired panel data model was developed based on the functional form shown by equation (1). It is in this regards that regression analysis concept involving a constant (α), parameters β1, β2, β3, and β4 catering for the effects of BLV, BP, BL, and PD on DP and μ and error term were introduced resulting in the following regression model;

LDP = α + β1LBLV + β2LBP + β3BL + β4LPD + μ ……………………(2)

The regression model shown by expression (2) was important for analysing the nature of impact (as to whether it is positive or negative) of leverage, bank performance, bank liquidity and previous dividends on dividends paid among Serbian commercial banks. Additionally, such was not only important for analysing effects but also for determining the magnitude of effects between the variables DP, BP, BL, BVL, and PD (Imai & Kim, 2019). The variables were first converted to logarithms to deal with the problem of outliers and ensure that they are homoscedastic. Hence, the estimated panel data model was estimated on the foundation of the regression model shown by expression (2).

The major disadvantage of applying such a model is data management. That is, if the data is not arranged properly then it is very difficult to get the regression results. This can be supported by Arellano and Honoré's (2001) suggestions denoting that even if the results are obtained, they will not be robust. Therefore, the solution would be to ensure that the data should be saved in a particular format matching the specific data analysis program required when conducting the panel data analysis. The second problem relates to the lack of logical results. According to Arellano and Honoré (2001), since panel data consists of both the time series and cross-sectional data, the usual descriptive analysis procedure does not give much logical result.

Furthermore, Bond (2002) argues that if the variables are string then it is not possible to conduct any analysis. The solution would be to ensure that the string variable is changed to the float or long format or one can either replace the string variable or create a new variable (Bond, 2002).

Unit Root Tests

The study applied unit root tests to determine if the used model variables were stationary. The application of stationarity tests is important for making sure that the results are not spurious (Breuer, McNown & Wallace, 2002). It is in line with such benefits that the stationarity tests were applied to test the suggested variables for unit roots.

According to Choi (2001), a variable is said to be stationary when its variance and mean values are constant or homogenous. Time series data may be trending and such cases require that specific approaches be applied to remove the trends. Ng and Perron (2001) assert that data may be subjected to time-trending regression and first differencing to de-trend or remove the trend. However, the data needs to confine to certain conditions between the two trend removal methods are applied. For instance, Glynn, Perera and Verma (2007) highlight that data that needs to be de-trended must be stationary at a level I(O) while first differencing is most suitable for I(I). Stationarity tests are also important for checking to see if trending data should be regressed or first differenced on deterministic functions of time to cause the data to become stationary.

Other modelling techniques like cointegration can be applied once the stationarity of the data has been determined. For instance, Ng and Perron (2001) note that variables of the order I(I) can be used in conjunction with finance and economic theories to determine their long-run underlying relations between the variables. In other words, stationarity tests can be used to examine whether two or more variables are showing mean-reverting behaviour.

The Augmented Dickey-Fuller (ADF) uses the null hypothesis asserting that the time series has a unit root (***H0: δ = 0***. $\boldsymbol{X}_t$). Meanwhile, the study applied the PP test because it reduces serial correlation in the error term by using a non-paramedic statistical approach without adding lagged difference terms found in the ADF.

$$\Delta y_t = \beta^1 D_t + p Y_{t-1} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(3)$$

Since the PP and the ADF share the same null hypothesis and yield similar results, the study opted to use the Levin, Lu and Ch test (Levin, Lin & Chu, 2001).

Cointegration Test

The study applied the Johansen cointegration test to analyse the existence of a cointegrating relationship between the variables (Turner, 2009). Such a test method was important for determining if the variables bank leverage, bank performance, bank liquidity, previous dividends and dividends paid were cointegrated in the long run.

The Johansen cointegration test relies on the application of a VAR (Vector Autoregression) model established by Dwyer (2015) as a foundation on which the entire cointegration approach is based (Turner, 2009). A typical VAR model can be illustrated using the following:

$$X_t = C + \Pi_k X + \Pi X_{t-k} + \varepsilon_t \; \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \; (4)$$

Where $X_t X_{t-1} \dots X_{t-k}$ shows vectors of lagged and current values of **n** variables respectively (I (1) in the mode, $\Pi 1, \dots \Pi k$ are known matrices of a coefficient **n X n** dimensions, *c* is the intercept vector and ε_t is a vector of random errors (Hjalmarsson & Österholm, 2007). Dwyer (2015) contends that care should be taken to ensure that the residual is not autocorrelated when determining the maximum order of lags of the autoregressive have to be determined and the auto regressive's selected number of lags. This also includes determining if a trend should be included or excluded from the estimation. According to Turner (2009), the rank Π depict the number of cointegration relationship (*i.e. r*) which is determined by testing whether the Max-Eigen value *(λi)* is different from zero.

According to Dwyer (2015), the Johansen cointegration test uses the trace test and the maximum eigenvalue test to determine the number of cointegrating equations. The maximum eigenvalue test statistic is given by;

- **H$_0$:** There are **r** cointegrating vectors.
- **H$_1$:** There are **r + 1** cointegrating vectors.

Meanwhile, the trace test statistic is based on the following hypothesis;

- **H$_0$:** Cointegrating vectors ≤ **r.**
- **H$_1$:** Cointegrating vectors ≥ **r + 1.**

Meanwhile, the Johansen cointegration test was applied to examine if the variables LDP, LBP, LBL, LBLV and LPVD are cointegrated using the following hypothesis;

- **H$_0$:** There is no long-run relationship between LDP, LBP, LBL, LBLV and LPVD.

- **H$_1$:** There is a long-run relationship between LDP, LBP, LBL, LBLV and LPVD.

The Hausman Test

The study applied the Hausman test in examining the desirable model that can be used to analyse the required association between the model variables (Patrick, 2021). As a result, the Hausman test was used in determining whether the Fixed Effect Model (FEM) or Random Effect Model (REM) is capable of offering reliable and robust explanations concerning the determinants of dividend policy. This was accomplished using the Hausman test under the following hypotheses as guidelines;

H$_0$: A REM offers reliable indicators about the determinants of dividends policy.

H$_1$: A FEM offers reliable indicators about the determinants of dividends policy.

Given that Hausman assists in choosing between the Fem and REM about which model should be used, a decision was reached to use a FEM. This is because the null hypothesis contenting that a REM offers reliable indicators about the determinants of dividends policy was rejected. Therefore, the alternative to use a FEM was accepted.

According to Borenstein, Hedges, Higgins and Rothstein (2010) in a FEM, the unobserved variables are allowed to have any associations whatsoever with the observed variables. Fixed effects models control for, or partial out, the effects of time-invariant variables with time-invariant effects (Zulfikar & STp, 2019). This is true whether the variable is explicitly measured or not, and this varies according to the statistical technique being used. Meanwhile, in a random-effects model, the unobserved variables are assumed to be uncorrelated with or, more strongly, statistically independent of all the observed variables (Borenstein et al., 2010). That assumption will often be wrong but, for the reasons given above. For example, standard errors may be very high with fixed effects but a REM estimates the effects

for time-invariant variables, a REM may still be desirable under some circumstances. A REM can be estimated via Generalized Least Squares (GLS).

Diagnostics Tests

Diagnostics tests were used to examine the applied FEM's capacity to offer reliable, valid and robust decisions by checking for issues such as misspecifications and model issues affecting the concept of Best Linear Unbiased Estimators (BLUE). As such, diagnostics tests were performed in the form of serial correlation, multicollinearity, heteroscedasticity, and Ramsey Reset test. A description of these tests is provided as follows;

Serial Correlation

The study proceeded to test the estimated model for serial correlation tests using the Durbin Watson statistic. According to Turner (2020), serial correlation is a condition that occurs when the error terms are correlated. Studies consider that serial correlation causes the estimated variances of the regression coefficients to be biased, leading to unreliable hypothesis testing (Turner, 2020; Martin & Wooldrige, 2021). The existence of serial correlation causes the t-statistics to appear to be more significant than they really are. The obtained fixed-effect model's Durbin Watson statistic value was compared with its related table values. The general rule is that the provided Durbin Watson statistic table values must exceed both the lower and upper Durbin Watson statistic values for a model to be declared free of serial correlation (Turner, 2020).

Heteroskedasticity

Heteroscedasticity refers to residuals for a regression model that does not have constant variance (Tse, 2002). According to Tse (2002), heteroscedasticity is a problem because ordinary least squares (OLS) regression assumes that all residuals are drawn from a population that has a constant variance (homoscedasticity). Meanwhile, the study proceeded to test the FEM for heteroskedasticity using a panel cross-section heteroscedasticity LR test. The null hypothesis contended that the estimated FEM is free from heteroscedasticity is acceptable at 5%. Lastly, the FEM was further tested for redundancy using the redundant fixed effects test. Such a test is vital because it provides details about the model's ability to offer reliable policy guidelines. In other words, the redundant fixed effects test examines the FEM for redundancy (Bell &

Jones, 2015). Such was done under the guidance of a null hypothesis that the FEM is redundant (Bell & Jones, 2015).

Multicollinearity Test

According to Kalnins (2018), multicollinearity happens when independent variables in the regression model are highly correlated. The problem of having is that the coefficient estimates can swing wildly based on which other independent variables are in the model (Lindner, Puck & Verbeke, 2020). Additionally, Adeboye, Fagoyinbo and Olatayo (2014) contend that multicollinearity reduces the precision of the estimated coefficients, which weakens the statistical power of your regression model. A very simple test known as the variance inflation factor (VIF) test is used to assess multicollinearity in our regression model. A correlation matrix can also be used for such purposes. Kalnins (2018) suggests that the correlation between the variables must be less than 0.7 for model variables to be declared as free from multicollinearity problems.

Ramsey Reset Test

The Ramsey Reset test by Ramsey and Schmidt (1976), was employed so as to determine whether the variables have an element of non-linearity or not. The Ramsey Reset test was used to test if the FEM has no non-linearity features. The test was conducted guided by the following hypothesis;

H_0: The fixed effect model variables have no element of non-linearity.

H_1: The fixed effect model variables have an element of non-linearity.

Stability tests

Stability tests provide an indication of how stable the estimated model is over the period under study. This is important because any model that is not stable will be incapable to offer any useful policy-making suggestions (Talas, Kaplan & Çelik, 2013). It is in this regard that attention was placed towards determining the stability of the agricultural productivity nexus model. The stability of the agricultural productivity nexus model was determined using Cusum and Cusum of squares tests. Cusum and Cusum of squares tests posit that a model is stable when the Cusum lies within the 5% significance limit (Lee, 2020).

Materials and Data Sources

The study focused on Serbian commercial banks because of the increased enforcement by the Central bank of Serbia to enforce strict adoption of effective and reliable accounting methods like FVA (Lukić, Popović & Janković, 2019). Additionally, it was observed that issued dividends have been increasing since the increased adoption of FVA by banks (Hanić, Jovanović & Stevanović, 2021). However, no study had addressed such concerns and hence, the need to analyse and verify the existence of a connection between FVA and dividends paid was significantly required.

Table 4.

Variable definition and period scale

Variable type	*Variable*	*Abbreviation*	*Definition*	*Data source*
Dependent	Dividends paid	DP	A reward paid to bank shareholders for investing in the banks.	
Independent	Bank performance	BP	This was operationally defined as changes in banks' income earned from their assets measured using return on assets	
	Bank liquidity	BL	It is a reflection of the banks' ability to meet their short-term obligations like deposits and other liabilities.	figshare.com*
	Bank leverage	BLV	Refers to the use of debt (borrowed capital) to undertake a project or an investment.	
	Previous dividends	PD	Dividends previously declared by the banks to their shareholders.	

Source: https://figshare.com/articles/dataset/Panel_Data_xlsx/11467284

The model was estimated using secondary data collected on bank-specific variables from 10 Serbian commercial banks (Intense, Unicredit, Komercijalna,

Societe, Raiffeisen, AIK, Erste, Eurobank, Postanska and Vojvodjanska OTP group). A figshare database on commercial banks was used to supply the required data and the period considered was between 2009 to 2018. Table 3 provides a summary of the bank-specific variables and the related source and period.

Limits of the Study

The study's findings are based on the examination of 10 Serbian commercial banks and hence, non-commercial banks were not included as part of this study. This entails that the study's findings are not generalisable by sector and country. Additionally, the implications of this study are limited to commercial banks and require non-commercial banks' narratives to be included to broaden their implications. Such limitations are to be addressed by future studies.

CHAPTER V

Data Analysis and Presentation

Introduction

This section of the study focuses on the analysis of the estimated cointegration and granger causality results that were conducted using EViews 12. The data analysis was based on the use of annual time series data from 2009 to 2018 on 10 selected Serbian commercial banks. Consequently, the established results are essential for testing the underlying hypotheses and answering the proposed research questions.

Unit Root Tests

The Fisher Phillips Perron (PP) and the Levin, Lin and Chu unit root tests were used in line with propositions suggested by Ng and Perron (2001) highlighting the effectiveness in examining panel data for unit roots. Such an approach was guided by the need to avoid spurious interpretations of the modelled results (Levin, Lin & Chu, 2002). Moreover, these unit root tests were also important for checking to make sure that other vital econometrics methods like cointegration can be used to analyse the existence of cointegration among the variables (Ng & Perron, 2001).

Table 5.

Unit root test results

	Fisher PP test		Levin, Lin & Chu test	
Variable	*Statistics*	*Probability*	*Statistics*	*Probability*
LDP	16.26	0.01	1.96	0.02
LBP	59.49	0.00	-4.91	0.00
LBL	94.79	0.00	-4.72	0.00
LBLV	109.03	0.00	-7.92	0.00
LPVD	46.57	0.00	-4.84	0.00

It is in line with these supporting empirical; studies that the Fisher Phillips Perron (PP) and the Levin, Lin and Chu unit root tests were used in this study. The

results shown in Table 5 show that the unit root probability values of the variables LDP, LBP, LBL, LBLV and LPVD were less than 0.05 at first difference. This show that these variables are stationary at first difference or have no unit roots at first difference. Hence, the first required condition of cointegration has been fulfilled (Levin, Lin & Chu, 2002).

Johansen Cointegration Results

The Johansen cointegration test was used to determine the variables the study proceeded to estimate the Johansen cointegration test (Appiah, 2018; Rossi & Wang, 2019). The established results shown in Table 6 show that both the trace and maximum eigenvalue methods support that there is 1 cointegration equation.

Table 6.

Johansen cointegration results

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
Unrestricted Cointegration Rank Test (Trace)				
None *	0.88	154.62	69.82	0.00
At most 1	0.27	27.10	47.86	0.85
At most 2	0.11	8.30	29.80	1.00
At most 3	0.02	0.99	15.49	1.00
At most 4	8.56	0.00	3.84	0.98
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
None *	0.88	127.53	33.88	0.00
At most 1	0.27	18.80	27.58	0.43
At most 2	0.11	7.31	21.13	0.94
At most 3	0.02	0.99	14.26	1.00
At most 4	8.56	0.00	3.84	0.98

Trace test and Max-eigenvalue tests indicate 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

This implies that the variables LDP, LBP, LBL, LBLV and LPVD are cointegrated. Hence, the null hypothesis H_0 was rejected leading to the acceptance of the alternative hypothesis H_1 stating that the variables are related in the long run denoted as follows;

H_0 **:** There is no long-run relationship between LDP, LBP, LBL, LBLV and LPVD.

H_1 **:** There is a long-run relationship between LDP, LBP, LBL, LBLV and LPVD.

Hausman Test

The decision to choose between a FEM and REM concerning each model's capacity to reliably explain the determinants of dividend policy was using the Hausman test.

Table 7.

Hausman test

	Stat.	**Df.**	**Sig.**
χ^2	15.739	4	0.003

Given that χ^2=15.739 and probability = 0.003, the null hypothesis contending that a REM provides reliable indicators about the determinants of dividends policy was rejected at 5% as shown in Table 7. This entails that a FEM offers reliable indicators about the determinants of dividends policy (see Patrick, 2021). The study then proceeded to estimate a FEM based on the direction of the Hausman test.

Panel Data Model Estimations

A REM was estimated prior to estimating the FEM. The established results presented in Table 8 show that all the variables LBLV, LBP, LBL and LPD are positively related with LDP by 0.046%, 1.688%, 0.004% and 0.669%, respectively. However, only LBP and LPD had significant positive effects on LDP at 5% and 1%, respectively (see Table 8). The REM shows that the model is associated with an R-square value of 0.4172 was obtained and this denoted that 41.72% of the changes in dividends paid were explained by bank performance, bank liquidity, bank leverage and previous dividends. The adjusted R-squared value was 0.3927 with an F-statistic of 17.00 with a Prob (F-statistic) of 0.000 and this means that the model is well specified.

The Durbin-Watson stat of 2.03 was close to 2 signifying that no serial correlation problems were affecting the model.

Table 8.

Panel data model estimations results

	Dependent Variable: LDP			
	Random effect model (REM)		Fixed effect model (FEM)	
Variable	Coefficient	Prob.	Coefficient	Prob.
C	-0.049	0.7398	0.05	0.0165
LBLV	0.046	0.4812	0.01	0.0503
LBP	1.688	0.0351	0.26	0.0370
LBL	0.004	0.8971	0.01	0.0276
LPD	0.669	0.0000	0.52	0.0002

REM model summary results

$R^2 = 0.4172$ **Adjust. R^2** $= 0.3927$ **F-stat.**$= 17.00$ **Prob. F-stat.** $= 0.00$ **DW stat.** $= 2.03$

FEM model summary results

$R^2 = 0.5987$ **Adjust. R^2** $= 0.5380$ **F-stat.**$= 9.87$ **Prob. F-stat.** $= 0.00$ **DW stat.** $= 2.08$

Nevertheless, attention was given to the FEM as suggested by the Hausman test results. Hence, the study proceeded to estimate a FEM in line with propositions suggested by the Hausman test results and the results are presented in Table 8. Preliminary examinations made from the FEM shows that the model is associated with an R-square value of 0.5987 was obtained and this denoted that 59.87% of the changes in dividends paid were explained by bank performance, bank liquidity, bank leverage and previous dividends. An insignificant difference can be observed between an R-squared value of 0.5987 and an Adjusted R-squared value of 0.5380. This implies that no misspecifications are affecting the model. Furthermore, the FEM was associated with an F-statistic of 9.86 with a Prob (F-statistic) of 0.000 and this means that the model is well specified. The Durbin-Watson stat of 2.08 was close to 2 signifying that no serial correlation problems were affecting the model (see also serial correlation tests presented in Table 8).

Table 8 results confirm the existence of insignificant positive interaction between bank leverage (BLV) and dividend payout of 0.01%. As a result, an increase in BLV by 1% caused a decrease in dividends paid by 0.01%. This is possible because

financial leverage influences the dividends distribution policies. Besides, other supporting studies like Houmani and Jhafari (2014) also contend that leverage is effective in changing a company's dividends. Other supporting results by Hardjopranoto (2006) also show that a high dividend payout entails that for companies to maintain their optimum capital structure, they have to apply a higher debt to finance their investments. Hence, leverage has a positive effect on dividends paid by banks and such a positive relationship was expected in the context of Serbian commercial banks. Moreover, conditions that lenders exercise on dividends, are effective in distributing dividends.

Table 8 shows that bank performance is positively and significantly related to the reported dividend payout by 0.26 at 5%. This means that an increase in bank performance by 1% causes banks potential capacity to pay dividends to increase by 0.26%. This is similar to recent findings made by Kirakul (2019) showing that banks with adequate earnings (profits) tend to issue shareholders with dividends so as to lure additional funding from existing and potential investors willing to reap from the attractive dividends offered by the banks. However, such findings are different from other previous studies like those conducted by Mamaro and Tjano (2020) on Top 40 firms listed on the Johannesburg Stock Exchange (JSE) and Sikalidis and Leventis (2017). The negative relationship is possible because the banks want to pay lower dividends after accumulating high-profit levels so as to maximise share prices as suggested by the Clientele theory. Besides, many investors do not usually prefer higher dividends but instead, prefer retaining earnings so as to avoid paying huge sums of tax.

The FEM results also show that improvements in bank liquidity are significantly and positively related to bank dividend payout exercises by 0.1%. Hence, improvements in bank liquidity by 1% can be said to be enhancing banks' ability to pay more dividends to their shareholders by 0.1%. Such findings are also supported by related findings established from Mamaro and Tjano's (2020) study on Top 40 South African companies listed on the JSE. Such liquidity is not only used to meet short-term obligations necessary but to reward stakeholders for investing their capital into the bank. This is essential for the effective functioning of the bank and for developing a good reputation and goodwill.

Meanwhile, the study findings were different to related findings established by Almeida, Pereira and Tavares (2015) regarding the negative interaction between

previously issued dividends and dividends paid. Contrasting studies contend that high previously dividends tend to reduce the need and obligation for companies to pay more dividends since they would have cleared any outstanding dividends (Almeida, Pereira & Tavares, 2015). This study results show that an increase in previously issued dividends by 1% causes an increase in dividend payouts by 0.52%. Hence, this study's findings imply that high previously paid dividends incentivize shareholders to invest more funds into the business to earn higher future dividends. Besides, high previously dividends tend to reduce the need and obligation for companies to pay more dividends since they would have cleared any outstanding dividends. Hence, pay it is advised that banks should pay more so as to reduce outstanding dividends and lure more investors to invest in the banks.

Model Tests

Model tests were applied to test the estimated model for multicollinearity, heteroscedasticity, serial correlation and redundancy. The results are presented in the following sections as follows;

Multicollinearity Tests

A correlation matrix was used to test the variables for multicollinearity. Given propositions suggested by Kalnins (2018) suggesting that the correlation between the variables must be less than 0.7 for model variables to be declared as free from multicollinearity problems, the variables LBLV, LBP, LBL and LPD had correlation values less than 0.7 (see Table 9). Hence, it can be declared that the variables as free from multicollinearity problems.

Table 9.

Multicollinearity test results

Variable	LBLV	LBP	LBL	LPD
c	1		-	
LBLV	0.313	1		
LBP	0.075	0.298	1	
LBL	0.513	0.497	0.062	1
LPD	0.464	0.243	0.113	0.025

Heteroscedasticity Tests

The study proceeded to test the FEM for heteroskedasticity using a panel cross-section heteroscedasticity LR test (Hadri, Guermat & Whittaker, 2003). The panel cross-section heteroscedasticity LR test was associated with a probability value of 0.137 as shown in Table 10. Thus, the null hypothesis contending that the estimated FEM is free from heteroscedasticity is acceptable at 5%.

Table 10.

Heteroscedasticity test

	Value	df.	Probability
Likehood ratio	5.27	4	0.137

Serial Correlation Tests

The study proceeded to test the FEM for serial correlation using the Durbin Watson statistic value by comparing it with its related table values. The general rule is that the provided Durbin Watson statistic table values must exceed both the lower and upper Durbin Watson statistic values for a model to be declared free of serial correlation (Turner, 2020). Table 11 provides evidence supporting that the FEM is free of serial correlation because the estimated Durbin Watson statistic value of 2.08 exceeds both the lower and upper Durbin Watson statistic values of 1.571 and 1.679, respectively.

Table 11.

Serial correlation test

Description	FEM	
	DW_L	DW_L
	1.57	1.68
DW estimation values	2.08	

Redundant Fixed Effects Test

The FEM passed the necessary diagnostics tests as a result, an additional test in the form of the redundant fixed effects test was used to test the model's ability to offer reliable policy guidelines. In other words, the redundant fixed effects test examines the FEM for redundancy (Bell & Jones, 2015). Such was done under the guidance of a null hypothesis that the FEM is redundant (Bell & Jones, 2015). Based on Table 12 results, the null hypothesis contending that the FEM is redundant was rejected at 5% because the probability value of 0.003 was less than 0.05.

Table 12.

Redundant fixed effects tests

	Statistic	**df.**	**Probability**
Cross section F	3.08	(9.86)	0.003

Ramsey Reset Test

Ramsey Reset test by Ramsey and Schmidt (1976), was employed so as to determine whether the variables have an element of non-linearity or not. In light of the reported Ramsey Reset test findings, conclusions can be made that the fixed effect model has no non-linearity features. That is, the model is linear and this is because the null hypothesis of linearity is accepted at 5% ($\chi2=0.\,670$; $\rho=0.1431$) as depicted in Table 10.

Table 13.

Ramsey Reset test

χ^2	Probability
0.067	*(0.1431)*

Stability Tests

Cusum and Cusum of squares stability inquiries were employed so as to ascertain if the formulated model can be declared to be stable over the course of the study which has been established to be 2009 to 2018. Based on Figure 1 presentation, it can be heeded that the model confines within the critical bounds. Hence, inferences

can be established that the formulated fixed effect model is stable over the period 2009-2018.

Figure 1(a)

Model stability tests (cusum test)
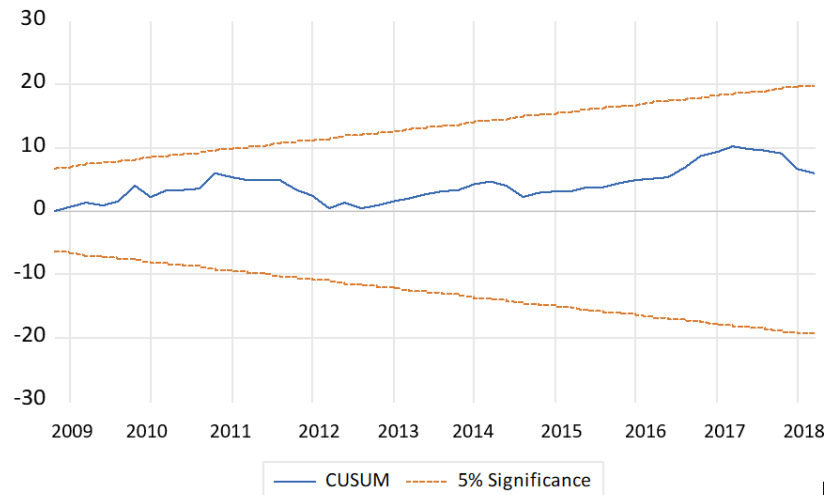
Figure 1(b)

*Model stability tests (*Cusum of squares)
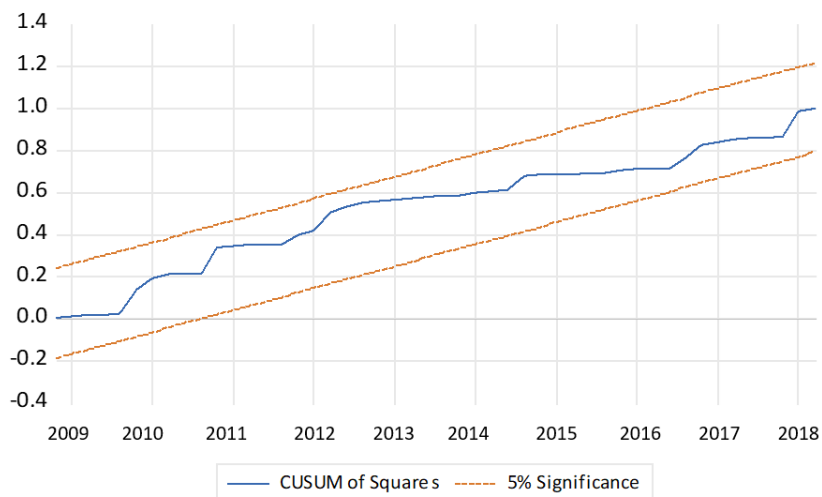
Summary of Expected Results against Actual Results

The study used time-series data for 10 Serbian commercial banks from 2009 to 2018 to estimate a FEM. The findings revealed that there is a long-run relationship between share price and FDI, GDP and DCPS in China. As such, similar results were obtained regarding the interaction between dividends paid and bank performance, bank

liquidity, fair value level 1 liabilities and previous dividends. That is, improvements in bank performance and liquidity were discovered to be causing banks to pay more dividends paid.

However, relatively different results were obtained concerning the interaction between bank performance and dividends paid as studies Almeida, Pereira and Tavares (2015) and Goncharov and van Triest (2011) contend that an increase in level and previous dividends had adverse effects on the bank's capacity to pay dividends. This is possible because companies will avoid paying more dividends in the future after accumulating high-profit levels so as to maximise share prices and avoid paying huge sums of tax. On the contrary, this study's results suggest that banks are issuing more dividends to attract more funding and develop a positive image and goodwill. A summary of the expected results against the obtained results is given in Table 14.

Table 14.

Summary of the expected results against the obtained results

Variable	Expected results	Actual result
Bank performance	(+/-)	(+)
Bank liquidity	(+/-)	(+)
Bank leverage	(+)	(+)
Previous dividends	(-)	(+)

Discussion of Findings

The section of the study provides detailed discussions of the established results related to the determinants of dividends policy. The initial findings revealed that bank leverage has an insignificant positive effect on the reported dividends paid by the banks. This is in support of related economic theories denoting that leveraging a business using too many quoted liabilities is important for maintaining an optimum capital structure. In addition, banks have to apply a higher debt to finance their investments. Besides, financial leverage influences the dividends distribution policies and is effective in changing a company's dividends. Moreover, conditions that lenders exercise on dividends, are effective in distributing dividends.

Secondly, the study findings showed that bank performance is positively related to the reported dividend paid by the banks. Such findings were partially in alignment with some studies suggesting that an increase in bank performance causes

banks to declare more dividends while others contend that they will pay fewer dividends. Such a negative interaction is supported propositions made by the Clientele theory denoting that businesses are reluctant to issue more dividends because of the need to maximise share prices. This entails that using profits to issue dividends has adverse effects on share prices and hence, banks will avoid paying more dividends to maintain high share prices as a reflection of rising organisational value. Moreover, supporting studies have shown that the negative relationship between bank performance and the dividend paid also suggested possible attempts by banks to avoid paying huge sums of tax causing them to retain more earnings instead of declaring dividends.

Thirdly, the findings established in this study showed that there is a significant positive relationship between bank liquidity and reported dividends paid by the banks. This possibly suggested that banks were opting to use the excess liquidity to reward stakeholders for investing their capital into the bank. That is, liquidity facilitates the swiftness of banks' strategic plans to reward their shareholders by paying them dividends. Additionally, paying shareholders dividends is essential for the effective functioning of the bank and for developing a good reputation and goodwill. This is because a timeously paying dividend bank attracts a good image and reputation in the eyes of investors and additionally liquidity allows banks to accomplish such aspirations.

Lastly, the study findings led to inferences being made following the established results that proved that previously issued dividends positively and significantly enhance banks' capacity to pay dividends. Such findings were different to related findings and implied that high previously paid dividends incentivize shareholders to invest more funds into the business to earn higher future dividends. Besides, high previously dividends tend to reduce the need and obligation for companies to pay more dividends since they would have cleared any outstanding dividends. Hence, pay it is advised that banks should pay more so as to reduce outstanding dividends and lure more investors to invest in the banks.

The study has successfully achieved its intended aims in determining and analysing the factors influencing dividend policy. Investors presume that high dividends are vital for incentivising investors to invest more funds into the business. Besides, high paid dividends indicate various aspects like improved performance, integrity and trustworthiness. However, studies are much limited to the examination

dividends yield as opposed to dividends paid. Such research issues have been successfully addressed. In addition, the influence of other factors like leverage, bank performance, liquidity and previous dividends have also been successfully incorporated and analysed using the Johansen cointegration and granger causality tests. This study's findings reliably explain the Serbian banking situation and form a solid base in contributing to existing literature and developing future studies.

CHAPTER VI

Conclusions and Recommendations

Conclusions

The main objective of the study was to primarily determine the determinants of dividends policy. The secondary aims of the study were to determine the impact of leverage, bank performance, bank liquidity, and previous dividends on dividends paid using annual time series data from 2009 to 2018 collected from Serbian commercial banks. The study was based on the case or study problem denoting that issues related to the determinants of dividend policy are still attracting several and significant concerns. In this regard, there are several controversies concerning how businesses can improve the quality of dividends paid. Though dividends paid has been suggested as an effective way of addressing such concerns, several empirical gaps and problems were still yet to be filled.

The first objective was to determine the effects of leverage on dividends paid. Subsequently, the initial findings made from the examined results showed that an increase in bank leverage significantly causes an increase in reported dividends paid by the banks. The findings were supported by related studies showing that leverage has a positive effect on dividends paid by banks and such a positive relationship was established in the context of Serbian commercial banks. Consequently, the results denoted that leveraging businesses is essential for maintaining an optimum capital structure. furthermore, banks have to apply a higher debt to finance their investments. Moreover, conditions that lenders exercise on dividends, are effective in distributing dividends because financial leverage influences the dividends distribution policies. This suugests that leverage is effective in changing a company's dividends. Therefore, a high dividend payout entails that for companies to maintain their optimum capital structure, they have to apply a higher debt to finance their investments.

The second research objective was aimed at determining the nature of the connection between bank performance and dividends paid. The study established study results similar with previous related studies regarding the effects of bank performance and dividends paid. As such, the results denoted that an increase in bank performance causes banks to significantly pay more dividends. This is because other important

factors like taxes and share prices have to be considered. Consequently, banks will resort to retaining the earned profits as retained earnings so as to avoid paying high taxes. Moreover, the other decisions would be to ensure that the banks' share prices remain relatively high and hence, the best option would be to avoid paying more dividends. Such findings were guided and supported by the Clientele theory thus, making the validity of such findings significant.

The third research objective was to analyse the relationship between bank liquidity and dividends paid. Inferences were made that bank liquidity has positive effects on the reported dividends paid by the banks. A positive relationship was observed to exist between bank liquidity and reported dividends paid by the banks. Supporting evidence shown by previous related studies shows that improvements in bank liquidity tend to enhance banks' ability to pay more dividends to their shareholders. Such is necessary for rewarding stakeholders for investing their capital into the bank. Additionally, this is essential for the effective functioning of the bank and developing a good bank image, reputation and goodwill.

Lastly, the study attempted to ascertain the effects of previous dividends on dividends paid. Inferrences made from this study showed that that previously issued dividends have a significant positive effect on banks reported paid dividends. This aligns with previous related studies. This suggests that banks will ensure that they pay more dividends to their shareholders to attractive more investment funds in the future. As such, such connection or relationship is of significant importance as it guides current and potential investors in using the reported financial details to gauge their decisions to invest in the banks and determine the profitability of investing in the banks. Additionally, these results are also similar to suggestions made by related studies showing that banks will possibly pay more dividends to reduce the need and obligation to pay more future dividends since they would have cleared any outstanding dividends.

The provided results were in line with proposition made through the Hausman test to consider a FEM as highly relevant, reliable and robutst in an alysing the determinants of dividends policy in Serbian commercial banking sector. The estimated FEM was free from multicolinearity, heteroscedasticity, and serial correlation problems undermining the applicatrion of the FEM's results in decision and policy making activities. This implies that the estimated FEM was free from misspecifications

undermining its potential capacity to provide reliable explanations about determinants of dividends policy in Serbian commercial banking sector. Furthermore, the validity, reliability and robustness of the FEM was tested using the redundant fixed effect, Ramsey reset and stability tests. The fixed effect model was not redundant but was rather linear and stable (cusum and cusum stability tests). Also, the cointegration test results exhibited that there was a significant long-run cointegration linking dividends paid with bank leverage, performance, bank liquidity, and previous dividends. This therefore, implies that it is safely sound to use the FEM results for decision making and policy formulation activities. Hence, the following provided recommendations with determined on the basis of such arrangement.

Recommendations

Using the established study conclusions, the study, therefore, suggests the following;

- Bank managers are encouraged to ensure that their performance goals are aligned with the shareholders' interests in line with the principal-agent theory to enhance the bank's corporate value.
- Proper and effective asset and liquidity management strategies are required to improve the use and management of liabilities to enhance operational effectiveness and bank performance essential for paying dividends.
- Declared and dividends must be properly structured in line with the banks' value proposition and performance goals to enhance their performance and value, and ensure that their shareholders' interests are met.

Suggestions for Future Studies

Nevertheless, the are potential limitations visible in this study and mostly is the study's concentration on Serbian commercial banks thereby excluding vital information about other banks. Moreover, non-commercial Serbian banks are also observing similar changes regarding the factors influencing their dividend policies. Such demands examinations.

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APPENDICES

Appendix A: Random effect model

Dependent Variable: LDP
Method: Panel EGLS (Cross-section random effects)
Date: 02/02/22   Time: 14:46
Sample: 2009 2018
Periods included: 10
Cross-sections included: 10
Total panel (balanced) observations: 100
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LBLV	0.046118	0.065212	0.707212	0.4812
LBP	1.688330	0.789694	2.137954	0.0351
LBL	0.003705	0.028568	0.129706	0.8971
LPD	0.668684	0.086937	7.691558	0.0000
C	-0.048725	0.146305	-0.333040	0.7398

Effects Specification

		S.D.	Rho
Cross-section random		0.000000	0.0000
Idiosyncratic random		0.194599	1.0000

Weighted Statistics

R-squared	0.417242	Mean dependent var	0.124626
Adjusted R-squared	0.392705	S.D. dependent var	0.259548
S.E. of regression	0.202263	Sum squared resid	3.886492
F-statistic	17.00450	Durbin-Watson stat	2.030966
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.417242	Mean dependent var	0.124626
Sum squared resid	3.886492	Durbin-Watson stat	2.030966

Appendix B: Fixed effect model

Dependent Variable: LDP
Method: Panel EGLS (Cross-section weights)
Date: 02/02/22   Time: 14:49
Sample: 2009 2018
Periods included: 10
Cross-sections included: 10
Total panel (balanced) observations: 100
Linear estimation after one-step weighting matrix
Cross-section SUR (PCSE) standard errors & covariance (no d.f.
     correction)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LBLV	0.014293	0.007200	1.985082	0.0503
LBP	0.262561	0.123919	2.118803	0.0370
LBL	0.009049	0.004037	2.241577	0.0276
LPD	0.521749	0.136385	3.825560	0.0002
C	0.053344	0.021804	2.446501	0.0165

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.598665	Mean dependent var	0.110864
Adjusted R-squared	0.537998	S.D. dependent var	0.228262
S.E. of regression	0.170041	Sum squared resid	2.486601
F-statistic	9.868055	Durbin-Watson stat	2.082501
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.495039	Mean dependent var	0.124626
Sum squared resid	3.367656	Durbin-Watson stat	2.026709

Appendix C: Hausman test results

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	15.738959	4	0.0034

** WARNING: estimated cross-section random effects variance is zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LBLV	0.081098	0.046118	0.004280	0.5929
LBP	1.328848	1.688330	0.766375	0.6813
LBL	0.065697	0.003705	0.000536	0.0074
LPD	0.489161	0.668684	0.002937	0.0009

Cross-section random effects test equation:
Dependent Variable: LDP
Method: Panel Least Squares
Date: 02/02/22   Time: 14:52
Sample: 2009 2018
Periods included: 10
Cross-sections included: 10
Total panel (balanced) observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.070938	0.210357	-0.337226	0.7368
LBLV	0.081098	0.092372	0.877949	0.3824
LBP	1.328848	1.178979	1.127118	0.2628
LBL	0.065697	0.036765	1.786923	0.0775
LPD	0.489161	0.102443	4.774944	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.511675	Mean dependent var	0.124626
Adjusted R-squared	0.437859	S.D. dependent var	0.259548
S.E. of regression	0.194599	Akaike info criterion	-0.306577
Sum squared resid	3.256706	Schwarz criterion	0.058147
Log likelihood	29.32885	Hannan-Quinn criter.	-0.158967
F-statistic	6.931717	Durbin-Watson stat	2.075668
Prob(F-statistic)	0.000000		

Appendix D: Redundant fixed effects test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	3.084023	(9,86)	0.0030

Cross-section fixed effects test equation:
Dependent Variable: LDP
Method: Panel EGLS (Cross-section weights)
Date: 02/02/22   Time: 14:51
Sample: 2009 2018
Periods included: 10
Cross-sections included: 10
Total panel (balanced) observations: 100
Use pre-specified GLS weights
Cross-section SUR (PCSE) standard errors & covariance (no d.f.
    correction)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LBLV	0.007855	0.006582	1.193314	0.2357
LBP	0.345695	0.121951	2.834704	0.0056
LBL	0.000636	0.004601	0.138311	0.8903
LPD	0.773298	0.115930	6.670409	0.0000
C	-0.009528	0.013285	-0.717206	0.4750

Weighted Statistics

R-squared	0.469135	Mean dependent var	0.110864
Adjusted R-squared	0.446783	S.D. dependent var	0.228262
S.E. of regression	0.186071	Sum squared resid	3.289143
F-statistic	20.98832	Durbin-Watson stat	1.984709
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.354767	Mean dependent var	0.124626
Sum squared resid	4.303146	Durbin-Watson stat	2.047472

Appendix E: Permissions Regarding the Use of Scales

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

17.02.2022

Dear Saman Ghazi Bakr

Your project **"An Empırıcal Analysıs Of The Determınants Of Dividend Polıcy: Evidence From Serbıan Banks"** has been evaluated. Since only secondary data will be used the project it does not need to go through the ethics committee. You can start your research on the condition that you will use only secondary data.

Assoc. Prof. Dr. Direnç Kanol

Rapporteur of the Scientific Research Ethics Committee

Direnc Kanol

Note: If you need to provide an official letter to an institution with the signature of the Head of NEU Scientific Research Ethics Committee, please apply to the secretariat of the ethics committee by showing this document.

Appendix F: Turnitin Similarity Report

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11%	9%	5%	5%
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