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Dina KORENT*
Marijana BUBANIĆ**
Doroteja GOLUBIĆ***

PROFITABILNOST KAO FUNKCIJA NOVČANOG JAZA SREDNJIH I VELIKIH PODUZEĆA U HOTELSKOJ INDUSTRIJI U HRVATSKOJ

PROFITABILITY AS A FUNCTION OF THE CASH GAP OF MEDIUM-SIZED AND LARGE ENTERPRISES IN CROATIA'S HOTEL INDUSTRY

SAŽETAK: Problem istraživanja je upravljanje novčanim jazom i njegov utjecaj na profitabilnost srednjih i velikih poduzeća iz hotelske industrije u Hrvatskoj. Svrha rada je istražiti i odrediti profitabilnost kao funkciju upravljanja novčanim jazom navedenih poduzeća. U radu se testira hipoteza da je profitabilnost konkavna polinomska funkcija drugog stupnja novčanog jaza predmetnih poduzeća. Osim deskriptivne statistike, u analizi se koristi dinamička metoda panel-regresije za vremensko razdoblje od 2017. do 2021. godine. Rezultati istraživanja pokazuju da je profitabilnost poduzeća konkavna polinomska funkcija drugog stupnja novčanog jaza. S obzirom na kriterij profitabilnosti, rezultati također ukazuju na postojanje optimalnog novčanog jaza za sva poduzeća (48,82 dana) i za srednja poduzeća (52,37 dana). Uvažavajući utvrđeni konkavan kvadratni odnos te činjenice da su novčani jazovi većine promatranih poduzeća (94%) kraći od optimalnih, a profitabilnost niska, postojeće se strategije upravljanja novčanim jazom ocjenjuju odviše agresivnima i neefikasnima te se, u cilju povećanja profitabilnosti, preporuča primjena konzervativnijeg upravljanja. Doprinos istraživanja očituje se u analizi profitabilnosti kao polinomne funkcije drugog stupnja novčanog jaza, za razliku od većine dosadašnjih koja su istraživala istu kao linearnu funkciju.

KLJUČNE RIJEČI: novčani jaz, profitabilnost, poduzeća, hotelska industrija, Hrvatska

ABSTRACT: The research problem is cash gap management and its impact on the profitability of medium and large enterprises in Croatia's hotel industry. The purpose of the paper is to investigate and determine profitability as a function of the mentioned enterprises' cash gap management. The hypothesis that profitability is a concave second-degree polynomial function of the cash gap of the enterprises in question is tested in the paper. Besides descriptive statistics, the dynamic panel data regression method is used in the analysis for the time horizon from 2017 to 2021. The research results show that enterprise profitability is a concave second-degree polynomial function of the cash gap.

* Dina Korent, Ph.D., Senior Teaching Assistant, Faculty of Organization and Informatics, Varaždin, Croatia, e-mail: dkorent@foi.unizg.hr, ORCID: 0000-0002-8285-6907

** Marijana Bubanić, Ph.D., Senior Teaching Assistant, Faculty of Organization and Informatics, Varaždin, Croatia, e-mail: mabubanic@foi.unizg.hr, ORCID: 0000-0002-8882-1430

*** Doroteja Golubić, M.Econ, controlling associate, Metalska industrija Varaždin d.d., e-mail: doroteja.golubic@gmail.com, ORCID: 0009-0004-5916-4090

With regard to the profitability criterion, the results also indicate the existence of an optimal cash gap for all enterprises (48.82 days) and for medium-sized enterprises (52.37 days). Acknowledging the established concave quadratic relationship as well as mostly shorter than optimal cash gaps (94%) and low profitability, the existing strategies for cash gap management are assessed as too aggressive and inefficient. Therefore, to increase profitability, more conservative management is recommended. The study's contribution is the analysis of profitability as a second-degree polynomial function of the cash gap unlike most previous studies that researched the same as a linear function.

KEY WORDS: cash gap, profitability, enterprises, hotel industry, Croatia

1. UVOD

Upravljanje novčanim jazom, kao komponentom sveukupne strategije poduzeća usmjerene stvaranju vrijednosti, važno je zbog svojeg značajnog utjecaja na likvidnost (Kim i Chung, 1990; Shin i Soenen, 1998; Opler *et al*., 1999), solventnost (Peel i Wilson, 1996), profitabilnost (Richards i Laughlin, 1980; Lamberson, 1995; Shin i Soenen, 1998; García-Teruel i Martínez-Solano, 2007; Raheman i Nasr, 2007; Afza i Nazir, 2008; Afrifa, 2016) te posljedično na vrijednost poduzeća (Moyer, McGuigan i Kretlow, 2006; Kieschnick, Laplante i Moussawi, 2013; Baños-Caballero, García-Teruel i Martínez-Solano, 2014; Afrifa, 2016). Shodno tome, neefikasno i neefektivno upravljanje novčanim jazom jedan je od osnovnih uzroka poslovnih neuspjeha poduzeća (Pass i Pike, 1987). Unatoč navedenom, isto se nerijetko zanemaruje, a značaj efikasnog i efektivnog upravljanja novčanim jazom prepoznaje se (najkasnije) kada se poduzeće nađe u financijskim poteškoćama (Kolay (1991) prema Lamberg i Vålming (2009)). Potonje je osobito istaknuto u razdobljima ekonomskih kriza, koje stavljaju naglasak na probleme likvidnosti poslovanja (Enqvist, Graham i Nikkinen, 2012) te na taj način potenciraju važnost efikasnog i efektivnog upravljanja novčanim jazom.

Uvažavajući izloženo, može se derivirati da je upravljanje novčanim jazom kritičan dio sveobuhvatnog upravljanja poslovnim financijama što podrazumijeva ozbiljno promišljanje u svim poduzećima (Lamberson,

1. INTRODUCTION

Cash gap management as an element of the enterprise's comprehensive strategy aimed at creating value is important because of its significant impact on liquidity (Kim and Chung, 1990; Shin and Soenen, 1998; Opler *et al*., 1999), solvency (Peel and Wilson, 1996), profitability (Richards and Laughlin, 1980; Lamberson, 1995; Shin and Soenen, 1998; García-Teruel and Martínez-Solano, 2007; Raheman and Nasr, 2007; Afza and Nazir, 2008; Afrifa, 2016) and thus on the value of the enterprise (Moyer, McGuigan and Kretlow, 2006; Kieschnick, Laplante i Moussawi, 2013; Baños-Caballero, García-Teruel and Martínez-Solano, 2014; Afrifa, 2016). Hence, inefficient and ineffective cash gap management is a main cause of enterprises' underperformance (Pass and Pike, 1987). However, this is often neglected while the significance of efficient and effective cash gap management is recognized only when financial difficulties occur (Kolay (1991) according to Lamberg and Vålming (2009)). The latter is particularly highlighted in the periods of economic crises which highlight liquidity problems (Enqvist, Graham and Nikkinen, 2012), thus emphasizing the importance of efficient and effective cash gap management.

Taking into account the above, cash gap management can be assumed a critical part of a comprehensive business finance management implying serious deliberation in all enterprises. (Lamberson, 1995; Deloof, 2003;

1995; Deloof, 2003; Dinku, 2013). U hrvatskom poslovnom okruženju, koje obilježavaju slaba financijska disciplina i ograničeni eksterni izvori financiranja, navedeni je zahtjev i dodatno izražen (Lončar i Ćurak, 2008b) kako bi se ostvarili najpovoljniji učinci na likvidnost, solventnost, profitabilnost i vrijednost poduzeća.

Iz elaboriranog problema istraživanja proizlazi cilj ovog rada koji se sastoji u ocjeni efektivnosti upravljanja novčanim jazom sa stajališta kriterija profitabilnosti, odnosno u ispitivanju i identificiranju profitabilnosti poduzeća kao funkcije novčanog jaza srednjih i velikih poduzeća u razredu gospodarskih djelatnosti Hoteli i sličan smještaj (I 55.10) u Hrvatskoj. Teorijski okvir i većina dosadašnjih empirijskih istraživanja u predmetnom području impliciraju da je profitabilnost poduzeća funkcija upravljanja novčanim jazom. Štoviše, predmetna razmatranja, premda u opusu dosadašnjih empirijskih istraživanja značajno manje i tek unatrag 10-ak godina zastupljena, sugeriraju da je profitabilnost polinomska funkcija drugog stupnja novčanog jaza. Na temelju definiranog problema i cilja istraživanja, te sukladno teoriji i spoznajama empirijskih istraživanja, postavljene istraživačke hipoteze su:

H1: Profitabilnost poduzeća je konkavna polinomna funkcija drugog stupnja novčanog jaza.

H2: Profitabilnost poduzeća kao konkavna polinomna funkcija drugoga stupnja novčanog jaza neovisna je o veličini poduzeća.

Glavni znanstveni doprinos je u analizi profitabilnosti kao polinomne funkcije drugog stupnja novčanog jaza, za razliku od većine dosadašnjih istraživanja koji su istu analizirali kao linearnu funkciju. Također, za razliku od većine postojećih istraživanja koja su uglavnom usmjerena na prerađivačku industriju i poduzeća koja kotiraju na burzi, predmetno istraživanje usmjereno je na uslužnu djelatnost i poduzeća registrirana u istoj neovisno o njihovoj kotaciji na burzi.

Dinku, 2013) In the Croatian business environment, which is marked by weak financial discipline and limited external sources of financing, this requirement is even more emphatic (Lončar and Ćurak, 2008b) in order to achieve the most favourable effects on liquidity, solvency, profitability and the value of the enterprise.

The objective of this paper is derived from the elaborated research problem and consists of evaluating the effectiveness of cash gap management from the profitability criteria standpoint, i.e. examining and identifying enterprise profitability as a function of the cash gap of medium-sized and large enterprises in the Hotels and Similar Accommodation class of economic activities (I 55.10) in Croatia. The theoretical framework and the majority of previous empirical research in the subject area imply that enterprise profitability is a function of cash gap management. Moreover, the considerations on the subject, although rarely and only in the past 10 years represented in empirical research, suggest that enterprise profitability is second-degree polynomial function of the cash gap. Based on the defined problem and the research objective, and pursuant to the theory and empirical research findings, the set research hypotheses are:

H1: Enterprise profitability is concave second-degree polynomial function of the cash gap.

H2: Enterprise profitability as a concave second-degree polynomial function of the cash gap is independent of enterprise size.

The main scientific contribution lies in the analysis of profitability as a second-degree polynomial function of the cash gap, in contrast to most previous studies that analysed it as a linear function. In addition, unlike the majority of existing studies, which are mainly focused on the manufacturing industry and enterprises listed on the stock exchange, this study focuses on a service activity and enterprises registered in it, regardless of their listing on the stock exchange.

2. PREGLED LITERATURE

2.1 Pregled dosadašnjih istraživanja

Na temelju pregleda dosadašnjih istraživanja u području može se zaključiti kako su istraživači tek unatrag dvadesetak godina više pozornosti počeli posvećivati ispitivanju utjecaja upravljanja novčanim jazom na profitabilnost poduzeća. Mnogobrojna istraživanja, više ili manje slijedeći inicijalna istraživanja koja su proveli Shin i Soenen (1998), Deloof (2003) i García-Teruel i Martínez-Solano (2007), ocjenjuju upravljanje novčanim jazom, nastojeći identificirati utjecaj istog na profitabilnost poduzeća. Analiza geografske pokrivenosti dosadašnjih istraživanja ukazuje na njihovu široku rasprostranjenost. Premda je veći broj istraživanja proveden na uzorcima poduzeća iz razvijenih zemalja, ne izostaju ni istraživanja na uzorcima poduzeća iz zemalja u razvoju. Pritom su objekt istraživanja pretežito poduzeća iz jedne zemlje, a samo nekolicina istraživanja provedena je na uzorcima poduzeća iz više zemalja (Bieniasz i Gołaś, 2011; Rehn, 2012; Uchenna, Mary i Okelue, 2012; Thapa, 2013). Najveći broj istraživanja uključuje uzorke poduzeća iz Nigerije, Pakistana, Turske, Vijetnama i Italije. Izuzmu li se završni, diplomski, poslijediplomski specijalistički, magistarski i doktorski radovi, u Hrvatskoj je provedeno svega nekoliko srodnih istraživanja: Lončar i Ćurak (2008a), Lončar i Ćurak (2008b), Barać Aljinović, Vuko i Vučak (2013), Mamić Sačer, Tušek i Korica (2013), Tušek, Perčević i Hladika (2014), Korent i Orsag (2018), Prša (2020).

Raspodjela istraživanja po djelatnostima demonstrira heterogenost. Ipak, najzastupljenije su djelatnosti prerađivačke industrije, dok se zbog računovodstvenih i poslovnih posebnosti iz uzoraka često izostavljaju poduzeća iz financijske djelatnosti. U fokusu dominantne skupine istraživanja su uzorci poduzeća koji obuhvaćaju više djelatnosti, čime se sugerira usporedba rezultata među istima. Predmet istraživanja su pretežito

2. LITERATURE OVERVIEW

2.1 Review of previous research

Based on the review of the previous research in the field, it can be concluded that only in the past twenty years have the researchers begun to pay more attention to examining the effect of cash gap management on enterprise profitability. Numerous studies, more or less following the initial studies conducted by Shin and Soenen (1998), Deloof (2003) and García-Teruel and Martínez-Solano (2007), evaluate cash gap management, seeking to identify its effect on enterprise profitability. The analysis of the geographical coverage in the previous research indicates its wide distribution. Although most research included the samples of enterprises from the developed countries, such samples from the developing countries are also included. The object of the research is predominantly focused on enterprise samples from one country, while only a few studies included several countries (Bieniasz and Gołaś, 2011; Rehn, 2012; Uchenna, Mary and Okelue, 2012; Thapa, 2013). The largest number of studies dealt with the samples of enterprises from Nigeria, Pakistan, Turkey, Vietnam and Italy. Apart from final, graduate, postgraduate specialist, master's and doctoral theses, only a few related studies have been conducted in Croatia: Lončar and Ćurak (2008a), Lončar and Ćurak (2008b), Barać Aljinović, Vuko and Vučak (2013), Mamić Sačer, Tušek and Korica (2013), Tušek, Perčević and Hladika (2014), Korent and Orsag (2018), and Prša (2020).

The distribution of the research by industry demonstrates heterogeneity. However, the most represented activities are in the processing industry, while the financial sector is often omitted due to accounting and business peculiarities. The dominant group of studies focuses on the samples of enterprises that cover several activities, which suggests a comparison of results among them. The subject of the research is predominantly enterprises

poduzeća uvrštena na nacionalne burze, a u vidu veličine, to su uglavnom velika poduzeća odnosno poduzeća svih veličina. Međutim, može se uočiti kako u posljednjih desetak godina raste i broj istraživanja koja se bave malim i srednjim poduzećima.

S metodološkog stajališta prednjače istraživanja zasnovana na primjeni metoda korelacije i regresije, a u kontekstu prirode utjecaja, istraživanja linearnog utjecaja upravljanja novčanim jazom na profitabilnost poduzeća. Nasuprot većini istraživanja utjecaja upravljanja novčanim jazom na profitabilnost, koja sukladno teorijskom utemeljenju, provociraju egzistenciju optimalnog novčanog jaza, testiraju linearni utjecaj upravljanja novčanim jazom na profitabilnost (Deloof, 2003; García-Teruel i Martínez-Solano, 2007; Nobanee i AlHajjar, 2014, između ostalih), istraživanja koja su proveli Silva, (2011), Baños-Caballero, García-Teruel i Martínez-Solano (2012), Gomes (2013), Russo (2013), Thapa (2013), Baños-Caballero, García-Teruel i Martínez-Solano (2014), Valahzaghard i Ghalhari (2014), Aktas, Croci i Petmezas (2015), Pais i Gama (2015), Afrifa (2016), Afrifa i Padachi (2016), Lyngstadaas i Berg (2016), Korent (2018), Yilmaz i Acar (2019), Prempeh i Peprah-Amankona (2020) te Hernandez *et al*. (2022) hipotetiziraju i/ili identificiraju da je profitabilnost poduzeća polinomna funkcija drugog stupnja novčanog jaza. Navedena istraživanja provedena su na uzorcima portugalskih, španjolskih, američkih, kanadskih, iranskih, britanskih, norveških, hrvatskih, omanskih i čileanskih poduzeća. Rezultati svih navedenih istraživanja, izuzev onih koja su proveli Russo (2013), Pais i Gama (2015), Lyngstadaas i Berg (2016) i Korent (2018), sugeriraju da je profitabilnost poduzeća robusna nemonotona konkavna polinomna funkcija drugog stupnja novčanog jaza. To sugerira postojanje optimalnog novčanog jaza koji maksimizira profitabilnost poduzeća.

U skladu s navedenim rezultatima, profitabilnost poduzeća raste kao rezultat produljenja novčanog jaza, odnosno ulaganja u

listed on the national stock exchanges, and are mostly large of all sizes. However, it can be noticed that in the past ten years, the number of studies dealing with small and medium-sized enterprises has also increased.

From the methodological point of view, the leading research is based on the application of the correlation and regression methods, but regarding the nature of the impact, the leading research deals with the linear effect of cash gap management on enterprise profitability. Contrary to most studies on the effect of cash gap management on profitability challenging the existence of an optimal cash gap and tests the linear effect of cash gap management on profitability, in accordance with the theoretical foundation (Deloof, 2003; García-Teruel and Martínez-Solano, 2007; Nobanee and AlHajjar, 2014, among others), the research conducted by Silva (2011), Baños-Caballero, García-Teruel i Martínez-Solano (2012), Gomes (2013), Russo (2013), Thapa (2013), Baños-Caballero, García-Teruel and Martínez-Solano (2014), Valahzaghard and Ghalhari (2014), Aktas, Croci and Petmezas (2015), Pais and Gama (2015), Afrifa (2016), Afrifa and Padachi (2016), Lyngstadaas and Berg (2016), Korent (2018), Yilmaz and Acar (2019), Prempeh and Peprah-Amankona (2020) and Hernandez *et al*. (2022) hypothesize and/or identify that enterprise profitability is a second-degree polynomial function of the cash gap. The research was conducted on the samples of Portuguese, Spanish, American, Canadian, Iranian, British, Norwegian, Croatian, Omani and Chilean enterprises. The results of all the mentioned studies, except for those conducted by Russo (2013), Pais and Gama (2015), Lyngstadaas and Berg (2016) and Korent (2018), suggest that enterprise profitability is a robust non-monotonic concave second-degree polynomial function of the cash gap. This implies the existence of an optimal cash gap that maximizes the enterprise's profitability.

Congruent with the stated results, the enterprise's profitability increases as the cash gap becomes longer, i.e. investment

novčani jaz, sve do određene razine nakon koje daljnje produljenje novčanog jaza, tj. daljnje ulaganje u novčani jaz, uzrokuje smanjenje profitabilnosti poduzeća (Prempeh i Peprah-Amankona, 2020; Hernandez *et al*., 2022). Budući da svako odstupanje od optimalne razine, bilo ono pozitivno ili negativno, uzrokuje smanjenje profitabilnosti, menadžeri bi trebali držati razine ulaganja u novčani jaz, odnosno duljinu novčanog jaza, što bliže optimalnoj razini koja usklađuje prednosti i nedostatke. U isto vrijeme, Baños-Caballero, García-Teruel i Martínez-Solano (2012) demonstriraju da među pozitivnim i negativnim odstupanjima od optimuma ne postoje statistički značajne razlike u njihovim negativnim utjecajima na profitabilnost poduzeća, dok Valahzaghard i Ghalhari (2014) ukazuju na to da negativno odstupanje od optimalne razine novčanog jaza ima značajno inverzan utjecaj na profitabilnost, a utjecaj pozitivnog odstupanja nije značajan. Nalazi predmetne skupine istraživanja impliciraju kako bi za povećanje profitabilnosti poduzeća na razinama ispod optimalnih trebalo produljiti novčani jaz, odnosno primjenjivati konzervativnu strategiju upravljanja novčanim jazom i, obratno, na razinama iznad optimalnih skratiti novčani jaz, odnosno aplicirati agresivnu strategiju upravljanja novčanim jazom (Afrifa, 2016).

Protivno izloženim rezultatima, rezultati istraživanja koje su proveli Pais i Gama (2015), Lyngstadaas i Berg (2016) i Korent (2018), na uzorcima poduzeća iz Portugala, Norveške i Republike Hrvatske, ukazuju na značajnu konveksnu kvadratnu ovisnost i prisutnost relevantnih minimuma profitabilnosti za dane novčanog jaza. Minimumi profitabilnosti postižu se za velike vrijednosti novčanog jaza, što sugerira trend pada, ali s rastućim graničnim prinosima, prinosa na imovinu s povećanjem novčanog jaza. Rastući granični prinosi opadanja pokazatelja profitabilnosti s povećanjem novčanog jaza ukazuju na to da se sa svakim jednakim dodatnim produljenjem novčanog jaza

in the cash gap, up to a certain level after which further prolongation of the cash gap or further investment in the cash gap causes a decrease in enterprise profitability. (Prempeh and Peprah-Amankona, 2020; Hernandez *et al*., 2022) As any deviation from the optimal level, whether positive or negative, causes a decrease in profitability, managers should keep the levels of investment in the cash gap, i.e. the cash gap length, closer to the optimal level that balances pros and cons. Nevertheless, Baños-Caballero, García-Teruel i Martínez-Solano (2012) demonstrate that there are no statistically significant differences between positive and negative deviations from the optimum concerning their negative effects on enterprise profitability, while the Valahzaghard and Ghalhari (2014) indicate that a negative deviation from the optimal cash gap has a significant inverse impact on profitability and that the impact of a positive deviation is not significant. The findings of the subject group of studies imply that in order to increase the profitability of an enterprise at suboptimal levels, the cash gap should be extended, i.e. conservative cash gap management strategy should be applied and conversely, at levels above optimal, the cash gap should be shortened, i.e., an aggressive cash gap management strategy should be applied (Afrifa, 2016).

Contrary to the presented results, the results of research conducted by Pais and Gama (2015), Lyngstadaas and Berg (2016) and Korent (2018) on samples of enterprises from Portugal, Norway and the Republic of Croatia, indicate significant convex quadratic dependence and the presence of relevant profitability minimum for cash gap days. Profitability minima are reached for large values of the cash gap, which suggests a downward trend as well as with increasing marginal returns, returns on assets with a cash gap increase. The growing marginal returns of the profitability indicators decline with the increase of the cash gap indicate that with each equal additional cash gap prolongation, the enterprise's

profitabilnost poduzeća smanjuje sve manje, i obratno. Temeljem navedenog autori zaključuju kako agresivna strategija upravljanja novčanim jazom povećava profitabilnost. Konačno, suprotno istraživanjima koja detektiraju da je profitabilnost poduzeća signifikantna polinomna funkcija drugog stupnja novčanog jaza, Russo (2013) pronalazi da je navedena funkcija sa statističkog stanovišta konzistentno nesignifikantna.

Hotelska industrija u Republici Hrvatskoj često je predmet interesa akademske zajednice, a različiti interesi znanstvenika polučili su širokim spektrom istraživanja iste. Tako je primjerice Barbieri (2010) istraživao strukturne odnose, financijske pokazatelje i financijsku učinkovitost u djelatnosti hotela i restorana, Poljanec-Borić (2004) istražuje privatizaciju hrvatske hotelske industrije, Vizek (2008) istražuje različite odrednice hrvatskog turističkog sektora, odnosno djelatnosti hotela i restorana, Žilić (2012) istražuje odrednice poslovne izvrsnosti u visokokategoriziranim hotelima itd. Međutim, istraživanja odrednica koje utječu na profitabilnost poduzeća hrvatske hotelske industrije malobrojna su. Škuflić i Mlinarić (2015) istražuju koje mikroekonomske odrednice utječu na profitabilnost hrvatske hotelske industrije u razdoblju od 2003. do 2011. godine pri čemu novčani jaz modelom nije razmatran. Slično istražuju i Dimitrić, Tomas Žiković i Arbula Blecich (2019) za mediteranske zemlje, uključujući i Hrvatsku, također bez novčanog jaza. Tušek, Perčević i Hladika (2014) istražuju međuovisnost profitabilnosti i novčanog jaza u hrvatskoj hotelskoj industriji u razdoblju od 2009. do 2012. godine. U istaknutim radovima odrednica profitabilnosti istraživan je linearni utjecaj novčanog jaza. Iz definiranog problema istraživanja i danog pregleda istraživanja odrednica profitabilnosti hotelske industrije proizlazi kako postoji potreba za provođenjem novog istraživanja profitabilnosti hotelske industrije koji će uključiti i determinantu novčanog jaza te ispitati nelinearan utjecaj iste na profitabilnost.

profitability decreases less and less, and *vice versa*. Hence, the authors conclude that an aggressive strategy of cash gap management increases profitability. Finally, contrary to studies detecting that enterprise profitability is a significant second-degree polynomial function of the cash gap, Russo (2013) finds that the said function is consistently insignificant from the statistical point of view.

The hotel industry in the Republic of Croatia has often been the subject of interest of the academic community, and the various interests of scholars have resulted in a wide range of studies. For example, Barbieri (2010) studied structural relations, financial indicators and financial efficiency in the hotel and restaurant industry, Poljanec-Borić (2004) investigated the privatization of the Croatian hotel industry, Vizek (2008) studied various determinants of the Croatian tourism sector, i.e. the hotel industry and restaurants, Žilić (2012) investigated the determinants of business excellence in high-class hotels, etc. However, the studies of the determinants that affect the profitability of enterprises in the Croatian hotel industry are scarce. Škuflić and Mlinarić (2015) investigate which microeconomic determinants affect the profitability of the Croatian hotel industry in the period from 2003 to 2011, without considering the cash gap in the model. Dimitrić, Tomas Žiković and Arbula Blecich (2019) investigate similar for Mediterranean countries, including Croatia, also without including the cash gap. Tušek, Perčević and Hladika (2014) investigate the interdependence of profitability and the cash gap in the Croatian hotel industry in the period from 2009 to 2012. The linear influence of the cash gap was investigated in prominent papers on the profitability determinants. From the defined research problem and the given overview of the studies on the profitability determinants of the hotel industry it follows that there is a need to conduct a new study on the profitability of the hotel industry that will also include the cash gap as a determinant and examine its non-linear impact on profitability.

2.2 Teorijski okvir

Novčani jaz (Boer, 1999; Eljelly, 2004; Serdarušić, 2007; Gulin, 2009) je najkorišteniji pokazatelj upravljanja obrtnim kapitalom, koji su, kao što navodi Eljelly (2004), brojni autori predložili kao mogući dodatak ili zamjenu za omjere obrtnog kapitala i tekuće omjere kao pokazatelje likvidnosti. Prvi je novčani jaz kao pokazatelj likvidnosti predstavio Gitman (1974), a kasnije navedeni preciznije definiraju Gitman i Sachdeva (1982). Gitman (1974) ga je definirao kao broj dana od trenutka kada je poduzeće platilo svoje osnovne zalihe do trenutka naplate potraživanja na temelju prodaje gotovih proizvoda poduzeća. Richards i Laughlin (1980) su operacionalizirali koncept novčanog jaza navodeći kako on odražava razdoblje između izdataka za inpute i primitaka od prodaje *outputa*. Shodno tome, duljina trajanja novčanog jaza određuje se zbrajanjem dana vezivanja zaliha i dana naplate potraživanja od kupaca te oduzimanjem dana vezivanja obveza prema dobavljačima (Brealey, Myers i Marcus, 2001; Van Horne i Wachowicz, 2008; Brigham i Ehrhardt, 2011).

Novčani jaz omogućava cjelovito upravljanje obrtnim kapitalom, uvažavajući međuovisnost parcijalnih elemenata obrtnog kapitala: zaliha, potraživanja od kupaca i obveza prema dobavljačima (Richards i Laughlin, 1980; Sartoris i Hill, 1983; Gentry, Vaidyanathan i Lee, 1990; Moss i Stine, 1993; McInnes, 2000). Stoga se potonje često određuje kao upravljanje novčanim jazom. Sveukupno upravljanje obrtnim kapitalom, odnosno upravljanje novčanim jazom integrira upravljanje zalihama, potraživanjima od kupaca i obvezama prema dobavljačima (Korent, 2018). Upravljanje novčanim jazom trebalo bi biti usmjereno na postizanje optimalne vrijednosti, sastava i cirkulacije neto operativnog obrtnog kapitala u užem smislu[1]

[1] Suma zaliha i potraživanja od kupaca umanjena za obveze prema dobavljačima.

2.2 Theoretical framework

The cash gap (Boer, 1999; Eljelly, 2004; Gulin, 2007; Serdarušić, 2007; Gulin, 2009) is the most used indicator of working capital management, which, as stated by Eljelly (2004), many authors have proposed as a possible addition or replacement for working capital ratios and current ratios as indicators of liquidity. The cash gap as an indicator of liquidity was first presented by Gitman (1974), and the later ones were more precisely defined by Gitman and Sachdeva (1982). Gitman (1974) defined it as the number of days from the moment when an enterprise has paid for its basic inventory until the moment of accounts receivable collection based on the sale of the enterprises' finished products. Richards and Laughlin (1980) operationalized the cash gap concept, stating that the said cash gap reflects the period between expenses for the inputs and sales receipts for the outputs. Accordingly, the length of the cash gap is determined by adding the days in inventory and the accounts receivable days and subtracting the accounts payable days (Brealey, Myers and Marcus, 2001; Van Horne and Wachowicz, 2008; Brigham and Ehrhardt, 2011).

The cash gap enables comprehensive working capital management, considering the interdependence of the individual working capital elements: inventory, trade receivables and trade payables (Richards and Laughlin, 1980; Sartoris and Hill, 1983; Gentry, Vaidyanathan and Lee, 1990; Moss and Stine, 1993; McInnes, 2000). Accordingly, the latter is often defined as cash gap management. In this regard, cash gap management integrates inventory management, management of the trade receivables and management of the trade payables (Korent, 2018). Cash gap management should be aimed at achieving the optimal value, composition and circulation of net operating working capital in the narrower sense (investment in cash gap)[1], which most

[1] The sum of inventory and trade receivables reduced by trade payables.

koje se najpovoljnije odražava na fundamentalni cilj poslovanja poduzeća, maksimizaciju njegove sadašnje vrijednosti (Deloof, 2003). Prema tomu, cilj upravljanja novčanim jazom sastoji se u uspostavi i održavanju optimalne likvidnosti poslovanja koja implicira najpovoljniju međuovisnost rizika i profitabilnosti, tj. onu međuovisnost koja najpovoljnije utječe na vrijednost poduzeća.

Polazeći od analize međuovisnosti rizika i profitabilnosti te ovisno o sklonosti riziku, poduzeća u nastojanju postizanja cilja upravljanja novčanim jazom formiraju i implementiraju strategiju upravljanja novčanim jazom. Temelj za formiranje strategije je trajanje novčanog jaza, odnosno vrijednosti ulaganja u zalihe i potraživanja od kupaca te iznosi obveza prema dobavljačima. Duljina novčanog jaza pritom se može koristiti kako bi se odredila priroda strategije upravljanja novčanim jazom koju je poduzeće implementiralo, a koja može biti agresivna, konzervativna i umjerena (Arnold, 2012). Relativno kraći novčani jaz ukazuje na relativno agresivniju strategiju, dok relativno dulji novčani jaz ukazuje na relativno konzervativniju strategiju. Nastavljajući se na prethodno, kraći novčani jaz u odnosu na dulji, odnosno agresivnija strategija upravljanja novčanim jazom obično ukazuje da poduzeće brže prima novac i plaća dobavljačima o roku dospijeća (Gentry, Vaidyanathan i Lee, 1990) te shodno tome zahtijeva manja ulaganja u novčani jaz. Prema tradicionalnom shvaćanju, kraći novčani jaz ukazuje na učinkovitije upravljanje novčanim jazom koje determinira veću profitabilnost (Nobanee i AlHajjar, 2009; Quayyum, 2012), a Gentry, Vaidyanathan i Lee (1990) navode i veću likvidnost poduzeća. Kraći novčani jaz implicira veću učinkovitost i veći neto novčani tok, odnosno veću likvidnost poduzeća (Fabozzi i Peterson, 2003). To rezultira većom vrijednošću poduzeća (Gentry, Vaidyanathan i Lee, 1990). Međutim, Deloof (2003) i Zariyawati *et al*. (2009) smatraju kako kraći jaz ne determinira nužno veću, a dulji manju profitabilnost

favourably impacts the fundamental goal of the enterprise's operations, that is, present value maximization (Deloof, 2003). Therefore, the objective of cash gap management is to establish and maintain optimal business liquidity, which implies the most favourable interdependence of risk and profitability, i.e. that interdependence that most favourably affects enterprise value.

Starting from the risk and profitability interdependence analysis and depending on risk appetite, enterprises form and implement a cash gap management strategy in order to achieve the cash gap management objective. The foundation for developing the strategy is the duration of the cash gap, i.e. the value of the inventory and trade receivables investments and the trade payables amount. The length of the cash gap can be used to detect the nature of the cash gap management strategy implemented by the enterprise, which can be aggressive, conservative or moderate (Arnold, 2012). A relatively short cash gap indicates a relatively aggressive strategy, while a relatively long cash gap indicates a relatively conservative strategy. Continuing from the above, a shorter cash gap compared to a longer one, i.e. a more aggressive cash gap management strategy, usually indicates that the enterprise receives cash more quickly and pays suppliers when due (Gentry, Vaidyanathan and Lee, 1990), and consequently requires less investment in cash gap. According to traditional understanding, a shorter cash gap indicates more efficient cash gap management, which determines higher profitability (Nobanee and AlHajjar, 2009; Quayyum, 2012), and according to Gentry, Vaidyanathan and Lee (1990), higher enterprise liquidity as well. A shorter cash gap implies more efficiency and greater net cash flow, that is greater enterprise liquidity (Fabozzi and Peterson, 2003). This results in higher enterprise value (Gentry, Vaidyanathan and Lee, 1990). However, Deloof (2003) and Zariyawati *et al*. (2009) believe that a shorter cash gap does not necessarily

poduzeća. Konačan utjecaj upravljanja novčanim jazom na profitabilnost poduzeća ovisi o troškovima i koristima dodatnog ulaganja u novčani jaz. Ako troškovi dodatnog ulaganja u novčani jaz rastu brže od koristi, učinkovitija je agresivna strategija, odnosno manje ulaganje u novčani jaz i kraći novčani jaz, dok je u obratnoj situaciji učinkovitija konzervativna strategija (Korent, 2018).

Postojanje troškova i koristi dodatnog ulaganja u novčani jaz zahtijeva stoga kompromis prilikom donošenja odluka o ulaganjima te sugerira postojanje optimalne razine ulaganja u novčani jaz, odnosno optimalnog novčanog jaza koji harmonizira troškove i koristi na način koji rezultira maksimalnom profitabilnošću i vrijednošću poduzeća (Nobanee, 2009). U zoni ispod optimalnog novčanog jaza, kada koristi nadilaze troškove dodatnog ulaganja u novčani jaz, rentabilnije je konzervativno upravljati novčanim jazom, dok je u zoni iznad vrijednosti optimalnog novčanog jaza, kada troškovi premašuju koristi dodatnog ulaganja, isplativije njime upravljati agresivno.

3. METODOLOŠKI OKVIR ISTRAŽIVANJA

3.1 Postupak uzorkovanja i uzorak istraživanja

Empirijsko istraživanje temelji se na bazi podataka godišnjih opažanja za srednja i velika poduzeća registrirana u Hrvatskoj u razredu djelatnosti Hoteli i sličan smještaj (NKD 2007: I 55.10). Razlog analize poduzeća iz navedenog razreda djelatnosti je njihova značajnost u hrvatskom gospodarstvu posljednjih nekoliko godina. Naime, turizam je najvažnija gospodarska aktivnost s višegodišnjim trendom povećanja broja inozemnih turističkih dolazaka, gotovo 20 milijuna u 2019. godini (Leksikografski zavod Miroslav Krleža, 2022). Prema posljednjim raspoloživim podacima Državnog zavoda za statistiku, bruto dodana vrijednost turističke

determine a higher and a longer cash gap lower profitability of the enterprise. The final cash gap management effect on the enterprise's profitability depends on the costs and benefits of additional investment in the cash gap. If the costs of additional investment in the cash gap grow faster than the benefits, an aggressive strategy is more efficient, i.e. less investment in the cash gap and a shorter cash gap, while conversely a conservative strategy is more efficient (Korent, 2018).

The existence of costs and benefits of additional investment in the cash gap, therefore, requires compromises when making investment decisions and indicates the presence of an optimal level of investment in the cash gap, i.e., an optimal cash gap that harmonizes costs and benefits in a way that maximises profitability and the value of the enterprise (Nobanee, 2009). In the zone below the optimal cash gap, when the benefits exceed the costs of additional investment in the cash gap, it is more profitable to manage the cash gap conservatively, while in the zone above the optimal cash gap value, when the costs exceed the benefits of additional investment, it is more profitable to manage it aggressively.

3. METHODOLOGICAL FRAMEWORK OF THE RESEARCH

3.1 Sampling procedure and research sample

The empirical research is established on the database of annual observations for medium-sized and large enterprises registered in Croatia in the Hotels and Similar Accommodation (NACE 2007: I 55.10) class of economic activities. The reason for analysing the enterprises from the mentioned activity class is their significance in the Croatian economy in the last few years. Tourism is the most important activity of the economy with a perennial trend of increasing numbers of international tourist arrivals, almost 20

aktivnosti u Republici Hrvatskoj je u 2019. godini iznosila gotovo 83 milijuna kuna, a doprinos iste ukupnoj bruto dodanoj vrijednosti iznosio je 24,41%, što su povećanja od 18,57% i 0,4 postotnih poena u odnosu na 2016. godinu. Izravni bruto domaći proizvod turizma u istoj je godini iznosio skoro 50 milijuna kuna, odnosno doprinos izravnog bruto domaćeg proizvoda turizma ukupnom bruto domaćem proizvodu iznosio je 11,82%, što su povećanja od 25% i 0,42 postotna poena u odnosu na 2016. godinu (Državni zavod za statistiku, 2019; Državni zavod za statistiku, 2022b).

Iz polaznog seta od 681 poduzeće-godina opažanja o srednjim i velikim poduzećima registriranima u Hrvatskoj u razredu djelatnosti I 55.10 te zavedenima u bazama podataka Financijske agencije u promatranom razdoblju od 2017. do 2021. postupkom uzorkovanja oblikovan je finalni uzorak istraživanja. U prvom koraku postupka uzorkovanja iz inicijalnog su skupa poduzeće-godina opažanja primjenom programa Stata/SE 14.2 izostavljena poduzeće-godina opažanja koja nemaju zaposlene na bazi sati rada, s nepozitivnim iznosima prihoda od prodaje, poslovnih rashoda, ukupne aktive ili kapitala i rezervi. Nakon navedenog koraka u uzorku je ostalo 626 poduzeće-godina opažanja. U drugom koraku iz potonjeg su skupa podataka, zbog prisutnosti *outliera*, u skladu s istaknutim dosadašnjim istraživanjima (Deloof, 2003; Baños-Caballero, García-Teruel i Martínez-Solano, 2012; Baños-Caballero, García-Teruel i Martínez-Solano, 2014; Pais i Gama, 2015), izolirana poduzeća-godina opažanja ispod 1. i iznad 99. percentila za svaku promatranu varijablu, osim za varijablu ekonomskog rasta. S obzirom na to da su i nakon drugog koraka u uzorku ostale neuobičajene ekstremne vrijednosti, u trećem je koraku uzorkovanja provedena 98-postotna *winsorizacija* za sve varijable korištene u modelu, osim za varijablu ekonomskog rasta. Ovim su postupkom sve vrijednosti varijabli ispod 1. percentila zamijenjene vrijednostima

million in 2019 (Leksikografski zavod Miroslav Krleža, 2022). According to the latest available data from the Croatian Bureau of Statistics, in 2019 the gross value added from tourism activities in Croatia was almost HRK 83 million, and its contribution to the total gross value added was 24.41%, which means increases of 18.57% and 0.4 percentage points compared to 2016. The direct gross domestic product generated by tourism in the same year amounted to almost HRK 50 million, i.e. the contribution of tourism to the total gross domestic product was 11.82%, or 25% and 0.42 percentage points compared to 2016 (Državni zavod za statistiku, 2019; Državni zavod za statistiku, 2022b).

From the initial set of 681 enterprise-year observations on medium-sized and large enterprises registered in Croatia in the activity class I 55.10 and recorded in the Financial Agency's databases in the observed period from 2017 to 2021, the final sample of the research was formed by sampling procedure. In the first step, enterprise-year observations that have no employees on the basis of the working hours, with non-positive sales revenues, business expenses, total assets or equity and reserves, were omitted from the initial set of enterprise-year observations using the Stata/SE 14.2 programme. In the first step, 626 enterprise-year observations remained in the sample. Secondly, enterprise-year observations below the 1st and above the 99th percentile for every observed variable, except for the economic growth variable, were isolated from the latter data set due to the presence of outliers and in accordance with the previous prominent research (Deloof, 2003; Baños-Caballero, García-Teruel and Martínez-Solano, 2012; Baños-Caballero, García-Teruel and Martínez-Solano, 2014; Pais and Gama, 2015). Since the unusual extreme values remained in the sample even after the second step, a 98% winsorization was done for all variables used in the model, except for the economic growth variable, in the third step of sampling. In this procedure,

1. percentila, a sve vrijednosti iznad 99. percentila zamijenjene su vrijednostima 99. percentila. Opisanim postupkom uzorkovanja oblikovan je finalni uzorak istraživanja koji čini ukupno 394 poduzeće godina, od čega se njih 74,87% odnosi na srednja poduzeća, a preostalih 25,13% na velika poduzeća. Tablica 1 pokazuje sastav konačnog uzorka po veličini poduzeća i godini.

all variable values under the 1st percentile were replaced by values of the 1st percentile and all values over the 99th percentile were replaced by values of the 99th percentile. This sampling procedure yielded the final research sample consisting of a total of 394 enterprise-year observations was formed of which 74.87% refer to medium-sized enterprises, and the remaining 25.13% to large enterprises. Table 1 inadicates the composition of the final sample by enterprise size and year.

Tablica 1: Sastav istraživačkog uzorka po veličini poduzeća i godini

Veličina / Godina	Srednja poduzeća	Velika poduzeća	Ukupno poduzeće-godina opažanja
2017.	60	22	82
2018.	62	22	84
2019.	67	23	90
2020.	58	19	77
2021.	48	13	61
Ukupno	**295**	**99**	**394**

Izvor: izrada autorica prema podacima FINA-e (Financijska agencija, 2022)

Table 1: Composition of the final sample by enterprise size and year

Size / Year	Medium-sized enterprises	Large enterprises	Total enterprise-year observations
2017	60	22	82
2018	62	22	84
2019	67	23	90
2020	58	19	77
2021	48	13	61
Total	**295**	**99**	**394**

Source: Made by the authors using data provided by FINA (Financijska agencija, 2022)

3.2 Istraživački podaci i varijable

Ovo istraživanje koristi sekundarne podatke o poduzećima u sastavu uzorka istraživanja i makroekonomske podatke pribavljene 2022. godine iz baze podataka info.BIZ, najveće baze podataka Financijske agencije, odnosno iz godišnjeg obračuna Državnog zavoda za statistiku i statistike Hrvatske narodne banke. Podaci o poduzećima obuhvaćaju osnovne podatke te podatke iz financijskih izvještaja neophodne za određivanje vrijednosti varijabli. Upotrebljavaju se varijable koje imaju teorijsko i empirijsko uporište te za koje su dostupni podaci potrebni za njihovo određenje. Kao zavisna varijabla u ovom istraživanju koristi se profitabilnost poduzeća određena bruto operativnim prinosom

3.2 Research data and variables

This research uses secondary data on enterprises included in the research sample and macroeconomic data, obtained in 2022 from the info.BIZ database, the largest database of the Financial Agency, i.e. from the annual calculation of the Croatian Bureau of Statistics and the data of the Croatian National Bank. The data on enterprises includes the basic data and the data from the financial statements required for determining the variable values. The variables used are those that have a theoretical and empirical basis and for which the necessary data is available. Enterprise profitability determined by the gross operating return on assets is used as a dependent variable in this study. The

na imovinu. Nezavisne varijable mogu se podijeliti na krucijalnu nezavisnu varijablu, specifično to je novčani jaz, i kontrolne nezavisne varijable, a to su veličina prodaje, godišnja stopa rasta prodaje, financijska poluga, udio investicija u dugotrajnu imovinu i ekonomski rast kao eksterni faktor. Nazivi, kratice te načini i izvori podataka za određenje varijabli dani su u Tablici 2.

Vrijednosti varijabli, izuzev varijable ekonomskog rasta koje se odnose na poduzeća, određene su za svako poduzeće u svakoj promatranoj godini. Potonje se razlikuju među različitim poduzećima u svakoj određenoj godini te između pojedinih promatranih godina za konkretno poduzeće. Međutim, ekonomski rast fluktuira kroz vrijeme, no identičan je za sva poduzeća u svakoj pojedinoj godini. Uzimajući u obzir korištenje panel regresijske analize, uključivanje ove varijable opravdano je s obzirom na to da se makroekonomski utjecaj, mjeren godišnjom stopom ekonomskog rasta, na poslovanje poduzeća s vremenom mijenja. Također, dodatno opravdanje za uključivanje varijable makroekonomskog rasta leži u činjenici što vremensko razdoblje istraživanja obuhvaća i razdoblje COVID-19 pandemije, a što je značajno utjecalo na cjelokupno hrvatsko gospodarstvo, pa i na poslovanje poduzeća iz hotelske industrije. Stoga, makroekonomska varijabla, mjerena stopom rasta realnog BDP-a, obuhvaća promjene u gospodarskoj aktivnosti izazvane COVID-19 pandemijom, i time mjeri njen utjecaj na profitabilnost poduzeća iz hotelske industrije.

independent variables used can be divided into the crucial independent variable, specifically the cash gap, and the control independent variables, i.e. sales volumes, annual sales growth rates, financial leverage, investment share in fixed assets and economic growth as the external factor. Names, abbreviations, methods and sources of data for determining the variables are given in Table 2.

The values of the variables referring to the enterprises, with the exception of the economic growth variable, are determined for each enterprise in every observed year. The latter differs between different enterprises in every specific year and between the individual observed years for the specific enterprises. However, although economic growth fluctuates over time, it is identical for all enterprises in every individual year. Considering the panel regression analysis, the inclusion of this variable is justified as the macroeconomic impact on business activity as measured by the annual economic growth rate changes over time. Similarly, an additional justification for including the macroeconomic growth variable lies in the fact that the time horizon of the research comprises the period of the COVID-19 pandemic, which significantly affected the entire Croatian economy, including the operations of enterprises from the hotel industry. Therefore, the macroeconomic variable, measured by the growth rate of real GDP, incorporates the changes in the economic activity caused by the COVID-19 pandemic, and measures its impact on the profitability of the hotel industry enterprises.

Tablica 2: Nazivi, kratice i načini određivanja varijabli uz navođenje izvora podataka

Naziv varijable	Kratica varijable	Način izračuna varijable
Bruto operativni prinos na imovinu	**GOROA***	GOROA = EBIT/ukupna imovina EBIT (bruto operativna dobit) = poslovni prihodi – poslovni rashodi
Novčani jaz	**CG***	CG = DAR + DINV – DAP DAR (dani vezivanja potraživanja od kupaca) = (prosječna potraživanja od kupaca/prihodi od prodaje)*365 DINV (dani vezivanja zaliha) = (prosječne zalihe/poslovni rashodi)*365 DAP (dani vezivanja obveza prema dobavljačima) = (prosječne obveze prema dobavljačima/poslovni prihodi)*365 CG^2 je pripadajući kvadrat navedenog pokazatelja
Veličina prodaje	**SS***	SS = ln (iznos prihoda od prodaje poduzeća)
Godišnja stopa rasta prodaje	**SGR***	SGR = (prihodi od prodaje$_t$ – prihodi od prodaje$_{t-1}$)/prihodi od prodaje$_{t-1}$)
Udio investicija u dugotrajnu imovinu	**SIFA***	SIFA = dugotrajna imovina/ukupna imovina
Financijska poluga	**FL***	FL = ukupne obveze/ukupna imovina
Ekonomski rast	**EG****	godišnja stopa rasta realnog bruto domaćeg proizvoda

**Izvor podataka na kojima se temelji izračun navedenog pokazatelja su baze podataka Financijske agencije (Financijska agencija, 2022).*

***Izvor podataka o ekonomskom rastu za razdoblje 2016.-2020. je godišnji obračun Državnog zavoda za statistiku (Državni zavod za statistiku, 2022a), a za 2021. godinu statistika Hrvatske narodne banke (Hrvatska narodna banka, 2022).*

Izvor: izrada autorica

Table 2: Names, abbreviations and methods for determining variables with data sources

Variable name	Variable abbreviation	Method for determining variable
Gross operating return on assets	**GOROA***	GOROA = EBIT/total assets. EBIT (gross operating profit) = revenue – operating expenses
Cash gap	**CG***	CG = DAR + DINV – DAP DAR (days of accounts receivable) = (average trade receivables/sales revenue) * 365 DINV (days of inventory) = (average inventory/operating expenses) * 365 DAP (days of accounts payable) = (average trade payables/operating revenue) * 365 CG^2 is the corresponding square of the specified indicator.
Sales size	**SS***	SS = ln (sales revenue)
Annual sales growth rate	**SGR***	SGR = (sales revenue$_t$ – sales revenue$_{t-1}$)/(sales revenue$_{t-1}$)
Share of investment in fixed assets	**SIFA***	SIFA = fixed assets/total assets
Financial leverage	**FL***	FL = total liabilities/total assets
Economic growth	**EG****	annual growth rates of real gross domestic product

**The data source on which the calculation of the mentioned indicator is based are the Financial Agency databases. (Financijska agencija, 2022)*

***The data source regarding economic growth for 2016-2020 period is based on the annual calculation of the Croatian Bureau of Statistics (Državni zavod za statistiku, 2022a), and for 2021, the statistics of the Croatian National Bank (Hrvatska narodna banka, 2022).*

Source: Made by the authors

3.3 Metode istraživanja

Analiza podataka provedena je primjenom metoda deskriptivne i inferencijalne statistike u programima MS Excel i Stata/SE 14.2. Deskriptivna statistika prvenstveno specificira karakteristike upravljanja novčanim jazom i profitabilnosti poduzeća, a uključuje izračun, analizu i interpretaciju osnovnih statističkih pokazatelja. Uz deskriptivnu statistiku, za testiranje profitabilnosti poduzeća kao funkcije novčanog jaza koristi se panel regresijska analiza. Konkretno, kao najprimjerenija, koristi se dinamička regresija panel-podataka. Primjerenost potonjeg proizlazi iz dinamičke prirode profitabilnosti, mogućnosti kontrole problema endogenosti koji postoji u modelima utjecaja upravljanja novčanim jazom na profitabilnost poduzeća te korekcije problema nehomogenosti uzorka zbog prisutnosti izdvojenica (Vural, Sökmen i Çetenak, 2012). Brojna dosadašnja istraživanja detektiraju dinamičku narav profitabilnosti (Nobanee, 2009; Baños-Caballero, García-Teruel i Martínez-Solano, 2012; Tahir i Anuar, 2016, između ostalih), koja se manifestira u činjenici da profitabilnost poduzeća u određenom razdoblju ovisi o profitabilnosti prethodnih perioda. Problem endogenosti, koji predstavlja koreliranost nekih ili svih eksplanatornih varijabli s greškom modela, a koje se stoga nazivaju endogenim varijablama, prema Wooldridge (2006), može biti rezultat postojanja obostrane uzročnosti, pristranosti determinirane neopaženom heterogenosti i/ili greške mjerenja. Baltagi (2005) također ističe da se endogenost javlja uslijed neopažene heterogenosti, odnosno izostavljanja relevantnih varijabli, selektivnosti uzorka, samoselekcije, greške mjerenja, ali i zbog drugih razloga. Obostrana uzročnost u modelima utjecaja upravljanja novčanim jazom na profitabilnost poduzeća očituje se u utjecaju koje upravljanje novčanim jazom i ostale nezavisne varijable imaju na profitabilnost poduzeća, i u povratnom utjecaju koji profitabilnost ima na upravljanje novčanim jazom i ostale, kontrolne nezavisne varijable.

3.3 Research methods

The data analysis is carried out by applying the methods of descriptive and inferential statistics in MS Excel and Stata/SE 14.2 programmes. The descriptive statistics primarily specifies the characteristics of cash gap management and enterprise profitability, and includes the calculation, analysis and interpretation of basic statistical indicators. In addition to the descriptive statistics, the panel data regression analysis is employed to test enterprise profitability as a function of the cash gap. Specifically, the dynamic panel data regression is used as the most appropriate. The suitability of the latter stems from the dynamic nature of profitability, the possibility of controlling the endogeneity problem that exists in models dealing with the effect of cash gap management on enterprise profitability, and the correction of sample inhomogeneity that exists due to the presence of outliers (Vural, Sökmen and Çetenak, 2012). Numerous previous studies have detected the dynamic nature of profitability (Nobanee, 2009; Baños-Caballero, García-Teruel and Martínez-Solano, 2012; Tahir and Anuar, 2016, among others), which is manifested in the fact that the profitability of an enterprise over a period depends on the profitability of previous periods. The problem of endogeneity, which represents the correlation of some or all explanatory variables with the model error, which are hence called endogenous variables, can be the result of the existence of mutual causality, bias determined by unobserved heterogeneity and/or measurement error, according to Wooldridge (2006). Baltagi (2005) also points out that endogeneity occurs due to unobserved heterogeneity, i.e., omission of relevant variables, sample selection bias, self-selection, measurement error or other reasons. Mutual causality in models dealing with the effect of cash management on the enterprise profitability is manifested in the influence that cash gap management and other independent variables have on the enterprise profitability, and in the feedback influence that profitability has on cash gap

Neopaženu heterogenost koreliranu s eksplanatornim varijablama u predmetnim modelima predstavljaju specifična obilježja poduzeća poput onih organizacijske, tehnološke i financijske prirode. Prisutnošću zavisne varijable s vremenskim pomakom kao nezavisne varijable, dinamički panel-modeli makar djelomično korigiraju probleme reverzne kauzalnosti i pristranosti zbog izostavljenih varijabli, odnosno pomažu kontrolirati problem autokorelacije (De Grauwe i Skudelny, 2000; Nobanee, 2009; Vural, Sökmen i Çetenak, 2012).

Međutim, premda omogućava kontrolu izvornog problema endogenosti, dinamički panel regresijski model također može rezultirati pojavom navedenog, koji pritom nastaje kao rezultat korelacije vremenski invarijantne neopažene heterogenosti s eksplanatornim varijablama, odnosno s lagiranom zavisnom varijablom (Korent, 2018). Navedeni se problem rješava primjenom prikladnih procjenitelja, poput Arellano–Bond procjenitelja i Arellano–Bover/Blundell–Bond procjenitelja linearnih dinamičkih panel-modela, koji diferenciranjem prvog reda iz modela uklanjanju vremenski invarijantnu neopaženu heterogenost te u isti uključuju interne instrumentalne varijable koje amortiziraju međuovisnosti diferencije zavisne varijable i ostalih endogenih regresora s greškom modela (Depken, 2015; Korent, 2018; Korent i Orsag, 2018; Mahmood *et al*., 2019; Prempeh i Peprah-Amankona, 2020). Arellano–Bover/Blundell–Bond procjenitelj je modifikacija Arellano-Bond procjenitelja pogodan za modele s velikim autoregresivnim parametrima i velikim omjerom varijance panel-efekata. Usporedba asimptotskih efikasnosti i rezultati Monte Carlo simulacija pokazuju da se potonji procjenitelj ponaša bolje od prvog za varijable koje perzistiraju kroz vrijeme i kratka razdoblja uzorka (StataCorp., 2015).

Razlozi za odabir Arellano–Bover/Blundell–Bond procjenitelja izložena su mogućnost neutraliziranja problema endo-

and other, control, independent variables. The unobserved heterogeneity correlated with the explanatory variables in the subject models is represented by the specific characteristics of the enterprise, such as those of the organizational, technological and financial nature. By introducing the lagged dependent variable as an independent variable dynamic panel models at least partially correct the problems of reverse causality and omitted-variable bias, i.e. they facilitate the control of the autocorrelation problem (De Grauwe and Skudelny, 2000; Nobanee, 2009; Vural, Sökmen and Çetenak, 2012).

Although it enables the control of the original endogeneity problem, the dynamic panel data regression model can also result in the occurrence of the aforementioned, which arises as a result of the correlation of time-invariant unobserved heterogeneity with explanatory variables, that is, with a lagged dependent variable (Korent, 2018). The problem is solved by applying suitable estimators, such as the Arellano-Bond estimator and Arellano–Bover/Blundell–Bond linear dynamic panel model estimator, which by differentiating the first order from the model remove time-invariant unobserved heterogeneity and insert internal instrumental variables leveraging the interdependencies of the differences between the dependent variable and other endogenous regressors with the model error (Depken, 2015; Korent, 2018; Korent and Orsag, 2018; Mahmood *et al*., 2019; Prempeh and Peprah-Amankona, 2020). The Arellano–Bover/Blundell–Bond estimator, a modification of the Arellano-Bond estimator, is suitable for models with large autoregressive parameters and a high panel effect variation ratio. The comparison of asymptotic efficiencies and the results of Monte Carlo simulations show that the latter estimator performs better than the former in variables that persist over time and short sample periods (StataCorp., 2015).

The reasons for selecting the Arellano–Bover/Blundell–Bond estimator are the presented possibility of neutralizing the

genosti dinamičkih panel-modela, odnosno adekvatnost za linearne modele s jednom dinamičkom zavisnom varijablom i s eksplanatornim varijablama koje nisu striktno egzogene, adekvatnost za modele s neopaženom individualnom heterogenosti, te za one s *within*, ali ne i *between* heteroskedastičnošću i autokorelacijom, prednosti u odnosu na Arellano–Bond procjenitelj i primjerenost za panele s manjim brojem perioda (T) i većim brojem subjekata (N) (Baum, 2013). Štoviše, Arellano–Bover/Blundell–Bond procjenitelj korišten je u istraživanjima koja su proveli Nobanee (2009), Vural, Sökmen i Çetenak (2012), Nobanee i AlHajjar (2014), Tahir i Anuar (2016) i Korent (2018).

Sukladno elaboriranim obrazloženjima, za testiranje hipoteze da je profitabilnost poduzeća konkavna polinomna funkcija drugog stupnja novčanog jaza, postavlja se linearni dinamički panel regresijski model s individualnim fiksnim efektima predstavljen *Izraz 1.*

endogeneity problem of dynamic panel data models, i.e. its adequacy for linear models with one dynamic dependent variable and the explanatory variables that are not rigidly exogenous, adequacy for models with unobserved individual heterogeneity, and for those with *within* but not *between* heteroscedasticity and autocorrelation, advantages over the Arellano-Bond estimator and suitability for the panels with fewer periods (T) and more subjects (N) (Baum, 2013). Moreover, the Arellano–Bover/Blundell–Bond estimator was used in the research conducted by Nobanee (2009), Vural, Sökmen and Çetenak (2012), Nobanee and AlHajjar (2014), Tahir and Anuar (2016) and Korent (2018).

In line with the elaborated explanations, a linear dynamic panel data regression model and specific enterprise fixed effects is set to test the hypothesis that the enterprise profitability is a concave second-degree polynomial function of the cash gap as presented in *Expression 1.*

$$GOROA_{it} = \beta_0 + \beta_1 * GOROA_{i,t-1} + \beta_2 * CG_{it} + \beta_3 * CG^2_{it} + \beta_4 * SS_{it} + \beta_5 * GRS_{it} + \beta_6 * FL_{it} + \\ + \beta_7 * SIFA_{it} + \beta_8 * EG_t + \eta_i + \varepsilon_{it}$$

Izraz 1

Simboli u zapisu modela imaju sljedeća značenja: *i* simbolizira poduzeće, *t* godinu, β_0 konstantu, β_i regresijski parametar pri čemu je i $\in[0,\ldots,8]$, η_i vremenski invarijantnu neopaženu individualnu heterogenost, ε_{it} slučajnu grešku, a kratice varijabli imaju značenja određena u Tablici 2. U modelu je varijabla ekonomskog rasta određena kao egzogena, a ostale varijable endogenima.

Na temelju procjene regresijskih parametara uz varijablu novčanog jaza i kvadrat iste, može se prema *Izrazu 2* odrediti koordinata tjemena parabole koja se nalazi na apscisi, tj. točka obrata u odnosu novčanog jaza i profitabilnosti poduzeća.

Expression 1

The symbols in the model notation have the following meanings: *i* symbolizes the enterprise, *t* the year, β_0 the constant, βi the regression parameter where i is $\in[0,\ldots,8]$, ηi the time-invariant unobserved individual heterogeneity, ε_{it} the random error, and the variable abbreviations meanings are explained in Table 2. In the model, the economic growth variable is determined as exogenous, while the other variables are determined as endogenous.

Based on the estimation of the regression parameters along with the cash gap variable and its square, the coordinate of the vertex of the parabola on the abscissa, i.e. the turning point in the cash gap-enterprise profitability relationship can be determined by *Expression 2*.

$$točka\ obrata = \frac{-\beta_2}{2\beta_3}$$

Izraz 2

Model je procijenjen za sva poduzeća te za srednja i velika poduzeća korištenjem *one-step* i *two-step robust* Arellano–Bover/Blundell–Bond procjenitelja te Arellano–Bover/Blundell–Bond *default* procjenitelja, odnosno Arellano–Bover/Blundell–Bond procjenitelja bez robusnih standardnih pogrešaka. Premda je *one-step* procjenitelj instrumentalnih varijabli uvijek konzistentan, kada greške demonstriraju heteroskedastičnost, korištenje *two-step* procjenitelja povećava efikasnost procjene (Baños-Caballero, García-Teruel i Martínez-Solano, 2012; Mahmood *et al*., 2019) jer navedeni ima manju asimptotsku varijancu, odnosno statistički testovi koji se temelje na procjenitelju u dva koraka su asimptotski robusniji (Hwang i Sun, 2018). Međutim, iako asimptotski učinkovitije, *two-step* procjene, odnosno standardne greške imaju tendenciju biti snažno pristrane prema dolje (*downward biased*) (Arellano i Bond, 1991; Blundell i Bond, 1998; Roodman, 2009). Kako bi se navedeno kompenziralo, primjenjuje se Windmeijerova (2005) korekcija konačnih uzoraka za asimptotske varijance *two-step* GMM procjenitelja (Roodman, 2009).

4. REZULTATI ISTRAŽIVANJA I RASPRAVA

Poglavlje uključuje prezentaciju i raspravu rezultata istraživanja. Prvi dio je fokusiran na rezultate deskriptivne statistike obilježja upravljanja novčanim jazom i obilježja profitabilnosti konačnog uzorka, dok je drugi fokusiran na rezultate panel-regresije u vezi s testiranjem istraživačke hipoteze da je profitabilnost poduzeća konkavna polinomna funkcija drugog stupnja novčanog jaza srednjih i velikih poduzeća u razredu djelatnosti Hoteli i sličan smještaj (I 55.10) registriranih

$$turning\ point = \frac{-\beta_2}{2\beta_3}$$

Expression 2

The model was estimated for all enterprises, both medium-sized and large ones, by applying the one-step and two-step robust Arellano-Bover/Blundell-Bond estimators and the Arellano-Bover/Blundell-Bond default estimator, i.e., without robust standard errors. Although the one-step estimator of the instrumental variables is always consistent, when the errors demonstrate heteroscedasticity, the use of the two-step estimator increases the efficiency of the estimation (Baños-Caballero, García-Teruel and Martínez-Solano, 2012; Mahmood *et al*., 2019) due to its smaller asymptotic variance, which implies that the statistical tests based on the two-step estimator are asymptotically more robust (Hwang and Sun, 2018). Although asymptotically more efficient, two-step estimates, or standard errors, tend to be strongly downward biased (Arellano and Bond, 1991; Blundell and Bond, 1998; Roodman, 2009). In order to compensate for the above-mentioned, Windmeijer's (2005) correction of the finite samples for the asymptotic variances of the two-step GMM estimator is applied (Roodman, 2009).

4. RESEARCH RESULTS AND DISCUSSION

This chapter comprises the presentation and discussion of research results. The first part is focused on the descriptive statistics results, regarding the characteristics of the cash gap management and the profitability characteristics of the final sample, while the second part is focused on the panel data regression results regarding the testing of the research hypothesis that the enterprise profitability is a concave second-degree polynomial function of the cash gap of medium-sized and large enterprises in the Hotels

Hrvatskoj, uz kontrolu za ostale eksplanatorne varijable profitabilnosti, za koje se u dosadašnjim istraživanjima ustanovilo da manifestiraju signifikantan utjecaj na potonju.

4.1 Rezultati deskriptivne statistike obilježja upravljanja novčanim jazom i obilježja profitabilnosti poduzeća

Tablica 3 prikazuje deskriptivnu statistiku pokazatelja upravljanja novčanim jazom za sva poduzeća te za srednja i velika poduzeća. Rezultati deskriptivne statistike općenito ukazuju na velike raspone varijacije, standardne devijacije i koeficijente varijacije promatranih pokazatelja. Stoga, prosječne vrijednosti nisu reprezentativni pokazatelji srednjih vrijednosti te se kao prikladniji reprezentanti istih koriste medijani. Medijalne vrijednosti dana vezivanja potraživanja od kupaca za sva poduzeća te srednja i velika poduzeća iznose okvirno 10, 11 i 7 dana, medijani dana vezivanja zaliha traju oko 6, 7 odnosno 4 dana, a medijani dana vezivanja obveza prema dobavljačima 20,5, 21,5 i 18,5 dana. Medijalno trajanje novčanog jaza iznosi aproksimativno -2, -0,5 odnosno -7 dana za sva poduzeća, srednja i velika poduzeća. Navedeno ukazuje da srednja i velika poduzeća u hotelskoj industriji u Hrvatskoj relativno agresivno upravljaju potraživanjima od kupaca i zalihama te relativno konzervativno obvezama prema dobavljačima, što sveobuhvatno rezultira agresivnim upravljanjem novčanim jazom. Pritom je agresivnost upravljanja potraživanjima od kupaca i zalihama izraženija kod velikih poduzeća, a konzervativnost upravljanja obvezama prema dobavljačima kod srednjih poduzeća. S obzirom na dominaciju prvotnog nad posljednjim, sveukupna agresivnost upravljanja novčanim jazom istaknutija je kod velikih poduzeća.

and Similar Accommodation (I 55.10) class of the economic activities registered in Croatia with control for other explanatory profitability variables that have been found to manifest a significant influence on the latter in previous research.

4.1 Results of descriptive statistics regarding characteristics of cash gap management and characteristics of enterprise profitability

Table 3 shows the descriptive statistics regarding the cash gap management indicators for all enterprises and for medium-sized and large enterprises. The results of descriptive statistics generally indicate large ranges of variation, standard deviations and coefficients of variation of the observed indicators. Therefore, the average values are not representative indicators of mean values, which is why median values are used as more appropriate. Median values of trade receivable days for all enterprises and for medium-sized and large enterprises are approximately 10, 11 and 7 days, median values of inventory days are around 6, 7 and 4 days, respectively, and the median values of trade payable days are 20.5; 21.5 and 18.5 days. The median duration of the cash gap for all enterprises and for medium-sized and large enterprises is approximately -2; -0.5 and -7 days respectively. The above indicates that medium-sized and large enterprises in the hotel industry in Croatia manage their trade receivables and their inventory relatively aggressively and their trade payables relatively conservatively, which results in overall aggressive cash gap management. The aggressiveness of trade receivables and inventory management is also more emphatic with large enterprises, and the conservatism of trade payables is more emphasized with medium-sized enterprises. Given the dominance of the former over the latter, the overall aggressiveness of cash gap management is more prominent in large enterprises.

Tablica 3: Deskriptivna statistika pokazatelja upravljanja novčanim jazom za sva poduzeća te za srednja i velika poduzeća

Varijabla	Minimum	Maksimum	Prosjek	Medijan	Standarda devijacija	Koeficijent varijacije
Sva poduzeća						
DAR	0,0795	215,0799	16,4533	10,0508	20,8361	126,6378
DINV	0,6546	326,0763	13,0750	5,9813	34,7558	265,8187
DAP	0,8977	237,1189	29,9256	20,5262	30,9498	103,4225
CG	-119,4823	324,8409	-0,7917	-1,7001	44,6978	-5645,8002
Srednja poduzeća						
DAR	0,0795	215,0799	18,3566	11,1824	22,8844	124,6658
DINV	0,6546	320,2654	13,7807	6,6143	34,5664	250,8320
DAP	0,8977	237,1189	31,859	21,4146	34,1439	107,1719
CG	-119,4823	260,9318	-0,2581	-0,5554	45,6628	-17691,9024
Velika poduzeća						
DAR	0,7629	71,4007	10,7821	6,8283	11,2482	104,3229
DINV	0,9088	326,0763	11,0007	4,1368	35,4024	321,8195
DAP	5,6477	103,2889	24,1643	18,5840	17,2950	71,5725
CG	-96,9912	324,8409	-2,3816	-6,7735	41,8722	-175,8154

Bilješke: DAR: dani vezivanja potraživanja od kupaca, DINV: dani vezivanja zaliha, DAP: dani vezivanja obveza prema dobavljačima, CG: novčani jaz.

Izvor: izrada autorica

Table 3: Descriptive statistics regarding cash gap management indicators for all enterprises and for medium-sized and large enterprises

Variable	Minimum	Maximum	Mean	Median	Standard deviation	Coefficient of variation
All enterprises						
DAR	0.0795	215.0799	16.4533	10.0508	20.8361	126.6378
DINV	0.6546	326.0763	13.0750	5.9813	34.7558	265.8187
DAP	0.8977	237.1189	29.9256	20.5262	30.9498	103.4225
CG	-119.4823	324.8409	-0.7917	-1.7001	44.6978	-5645.8002
Medium-sized enterprises						
DAR	0.0795	215.0799	18.3566	11.1824	22.8844	124.6658
DINV	0.6546	320.2654	13.7807	6.6143	34.5664	250.8320
DAP	0.8977	237.1189	31.859	21.4146	34.1439	107.1719
CG	-119.4823	260.9318	-0.2581	-0.5554	45.6628	-17691.9024
Large enterprises						
DAR	0.7629	71.4007	10.7821	6.8283	11.2482	104.3229
DINV	0.9088	326.0763	11.0007	4.1368	35.4024	321.8195
DAP	5.6477	103.2889	24.1643	18.5840	17.2950	71.5725
CG	-96.9912	324.8409	-2.3816	-6.7735	41.8722	-175.8154

Notes: DAR: number of days of accounts receivable, DINV: number of days of inventory, DAP: number of days accounts payable, CG: cash gap.

Source: Made by the authors

Tablica 4 prikazuje deskriptivnu statistiku bruto operativnog prinosa na imovinu svih poduzeća te srednjih poduzeća i velikih poduzeća. I u ovom se slučaju, iz istih razloga kao i kod pokazatelja upravljanja novčanim jazom, kao relevantan reprezentant srednje vrijednosti koristi medijan. Medijalne vrijednosti bruto operativnog prinosa na imovinu svih poduzeća, srednjih poduzeća i velikih poduzeća iznose redom: 5,35%, 5,26% i 5,62% te upućuju na relativno nisku profitabilnost hrvatske hotelske industrije, s nešto višom operativnom profitabilnosti velikih naspram srednjih poduzeća.

Table 4 shows descriptive statistics regarding gross operating return on assets of all enterprises and of medium-sized enterprises and large enterprises. Here, the median is used as a relevant representative of the mean value as well, for the same reasons as with the cash gap management indicators. Median values of gross operating return on assets of all enterprises, of medium-sized enterprises and of large enterprises are 5.35%, 5.26% and 5.62%, respectively, and point to a relatively low profitability of the Croatian hotel industry, with a slightly higher operational profitability of large enterprises in comparison to medium-sized enterprises.

Tablica 4: Deskriptivna statistika bruto operativnog prinosa na imovinu za sva poduzeća te za srednja i velika poduzeća

Varijabla	Minimum	Maksimum	Prosjek	Medijan	Standarda devijacija	Koeficijent varijacije
Sva poduzeća						
GOROA	-0,1228	0,1889	0,0254	0,0256	0,0535	210,6299
Srednja poduzeća						
GOROA	-0,1110	0,1680	0,0239	0,0239	0,0526	220,0837
Velika poduzeća						
GOROA	-0,1228	0,1889	0,0297	0,0326	0,0562	189,2256

Bilješke: GOROA: bruto operativni prinos na imovinu.

Izvor: izrada autorica

Table 4: Descriptive statistics regarding gross operating return on assets for all enterprises and for medium-sized and large enterprises

Variable	Minimum	Maximum	Mean	Median	Standard deviation	Coefficient of variation
Whole sample						
GOROA	-0.1228	0.1889	0.0254	0.0256	0.0535	210.6299
Medium-sized enterprises						
GOROA	-0.1110	0.1680	0.0239	0.0239	0.0526	220.0837
Large enterprises						
GOROA	-0.1228	0.1889	0.0297	0.0326	0.0562	189.2256

Notes: GOROA: gross operating return on assets.

Source: Made by the authors

Iz Tablica 3 i 4 razvidno je da se novčani jazovi i profitabilnosti srednjih i velikih poduzeća razlikuju. Upravo zbog toga postavlja se pitanje je li razlika u profitabilnosti srednjih i velikih poduzeća uzrokovana različitim novčanim jazovima. Drugim riječima, je li profitabilnost poduzeća kao konkavna polinomna funkcija drugoga stupnja novčanog jaza neovisna o veličini poduzeća, kao što je to pretpostavljeno drugom hipotezom.

4.2 Rezultati panel regresijske analize utjecaja profitabilnosti poduzeća kao funkcije novčanog jaza

Kao što je istaknuto u metodološkom okviru istraživanja, kreirani dinamički panel regresijski model profitabilnosti poduzeća kao polinomne funkcije drugog stupnja novčanog jaza procijenjen je za sva poduzeća te za srednja poduzeća i velika poduzeća s po tri procjenitelja, što je rezultiralo u ukupno devet procijenjenih modela. Tablica 5 prezentira sažete rezultate procjena modela za sva poduzeća te za srednja i velika poduzeća. Nazivi procjena modela definirani su ovisno o primijenjenom procjenitelju panel-modela (ABBB2r – *two-step robust* Arellano–Bover/Blundell–Bond procjenitelj; ABBB1r – *one-step robust* Arellano–Bover/Blundell–Bond procjenitelj; ABBB1 – *one-step* Arellano–Bover/Blundell–Bond bez robusnih standardnih pogrešaka) i poduzorku veličine poduzeća (M – srednja poduzeća; L – velika poduzeća).

Rezultati procjena regresijskih parametara uz varijablu novčanog jaza u razini, odnosno varijable prvog stupnja, ukazuju da potonji konzistentno pozitivno i, na razini signifikantnosti od 10%, dominantno signifikantno, izuzev u *two-step robust* procjenama, utječu na bruto operativni prinos na imovinu za sva poduzeća i srednja poduzeća. Za velika poduzeća, premda pozitivan, predmetni je utjecaj identificiran konzistentno statistički nesignifikantnim. Nastavno, regresijski koeficijenti

Tables 3 and 4 show that the cash gaps and profitabilities of medium-sized and large enterprises differ. Precisely because of this, the question arises whether the difference in the profitability of medium-sized and large companies is caused by different cash gaps. In other words, is the enterprise profitability as a concave second-degree polynomial function of cash gap independent of the size of the enterprise as assumed by the second hypothesis.

4.2 Results of the panel data regression analysis of the enterprise profitability as a function of the cash gap

As pointed out in the methodological framework of the research, the created dynamic panel data regression model of the enterprise profitability as a second-degree polynomial function of the cash gap was estimated for all enterprises and for medium-sized enterprises and large enterprises with three estimators each, which resulted in a total of 9 estimated models. Table 5 presents summary results of model estimations for all enterprises and for medium-sized and large enterprises. The names of the model estimates are defined depending on the applied panel model estimator (ABBB2r – two-step robust Arellano-Bover/Blundell-Bond estimator; ABBB1r – one-step robust Arellano-Bover/Blundell-Bond estimator; ABBB1 – one-step Arellano-Bover/Blundell-Bond without robust standard errors) and the enterprise size sub-sample (M – medium-sized enterprises; L – large enterprises).

The results of the regression parameter estimations along the cash gap variable in the level, i.e. the first-degree variable, indicate that the latter influence gross operating return on assets of all enterprises and of medium-sized enterprises consistently positively and at a significance level of 10% or dominantly significantly, except in the two-step robust estimations. With large

uz kvadrate novčanog jaza, koji su jednaki polovici vrijednosti druge parcijalne derivacije bruto operativnog prinosa na imovinu u odnosu na novčani jaz, u svim su procjenama modela za sva poduzeća i srednja poduzeća konzistentno signifikantno pozitivni na razini signifikantnosti od 1%. Posljednje, zajedno s dominantno signifikantnim koeficijentima istih u razinama, odnosno prvog stupnja, sugerira da je profitabilnost poduzeća konkavna polinomska funkcija drugog stupnja novčanog jaza i prisutnost optimalnih novčanih jazova u kontekstu maksimuma profitabilnosti. Kod velikih poduzeća, premda je identificiran negativan utjecaj kvadrata novčanog jaza na profitabilnost poduzeća, isti je statistički signifikantan tek u slučaju *two-step robust* procjene.

Optimalne vrijednosti novčanog jaza za koje se postižu maksimalne vrijednosti bruto operativnog prinosa na imovinu izračunavaju se parcijalnim deriviranjem bruto operativnog prinosa na imovinu s obzirom na novčani jaz te izjednačavanjem predmetnih prvih parcijalnih derivacija s nulom. Shodno tome, koeficijenti novčanih jazova te kvadrata istih omogućavaju određivanje točaka preokreta, u ovom slučaju optimalnih novčanih jazova za koje se postižu maksimalne vrijednosti bruto operativnog prinosa na imovinu, a prema *Izraz 2*. Procijenjeni optimalni novčani jaz za koji se postiže maksimalni bruto operativni prinos na imovinu za sva poduzeća iznosi 48,82 dana, a za srednja poduzeća 52,37 dana.

Na temelju rezultata testiranja, iako se odbacuje za velika poduzeća, prva hipoteza, da je profitabilnost poduzeća konkavna polinomna funkcija drugog stupnja novčanog jaza, ne može se odbaciti za sva poduzeća i srednja poduzeća te se stoga navedena većim dijelom prihvaća. Međutim, a s obzirom na činjenicu da je profitabilnost poduzeća konkavna polinomna funkcija drugog stupnja novčanog jaza za srednja poduzeća, ali ne i za velika poduzeća, druga se hipoteza, da je profitabilnost poduzeća kao konkavna

enterprises, although positive, the relevant impact was identified as consistently statistically insignificant. Moreover, the regression coefficients of the squares of the cash gap variable, which are equal to half the value of the second partial derivative of the gross operating return on assets in relation to the cash gap, are consistently significantly positive in all model estimates for all enterprises and for medium-sized enterprises at a significance level of 1%. The latter, together with the dominantly significant coefficients of the same variable of the first-degree, suggests that the enterprise profitability is a concave second-degree polynomial function of cash gap and the presence of optimal cash gaps in the context of maximum profitability. In the case of large enterprises, a negative effect of the square of the cash gap variable on the enterprise's profitability was identified, however it is statistically significant only in the case of the two-step robust estimation.

Optimal cash gap values for which the maximum values of the gross operating return on assets are achieved are calculated by partially deriving the gross operating return on assets in relation to the cash gap and by equating the relevant first partial derivatives to zero. Accordingly, the coefficients of the cash gaps and their squares make it possible to determine the turning points, in this case the optimal cash gaps for which the maximum values of the gross operating return on assets are achieved, according to *Expression 2*. The estimated optimal cash gap for which the maximum gross operating return on assets is achieved is for all enterprises 48.82 days, and for medium-sized enterprises 52.37 days.

Based on the test results, the first hypothesis stating that the enterprise profitability is a concave second-degree polynomial function of the cash gap cannot be rejected for all enterprises and medium-sized enterprises and is hence mostly accepted. However, since the enterprise profitability is a concave second-degree polynomial function of the cash gap for medium-sized enterprises, but

polinomna funkcija drugog stupnja novčanog jaza neovisna o veličini poduzeća, odbacuje. Nesignifikantnost i/ili nekonzistentnost rezultata prisutna za velika poduzeća može se objasniti činjenicom da se na brojčano malim poduzorcima poduzeća teško može precizno empirijski kvantificirati utjecaj novčanog jaza, a osobito uzmu li se u obzir i utjecaji drugih potencijalnih odrednica profitabilnosti koje, između ostalog, determiniraju i sam novčani jaz.

Prezentirani rezultati, koji ukazuju na to da je profitabilnost poduzeća konkavna polinomna funkcija drugog stupnja novčanog jaza za sva poduzeća i za srednja poduzeća, kompatibilni su s rezultatima istraživanja koje su proveli Silva (2011), Baños-Caballero, García-Teruel i Martínez-Solano (2012), Gomes (2013), Thapa (2013), Baños-Caballero, García-Teruel i Martínez-Solano (2014), Valahzaghard i Ghalhari (2014), Aktas, Croci i Petmezas (2015), Afrifa (2016), Afrifa i Padachi (2016), Yilmaz i Acar (2019), Prempeh i Peprah-Amankona (2020) te Hernandez *et al*. (2022). Navedeni ukazuju na to da profitabilnost raste kao rezultat produljenja novčanog jaza, odnosno ulaganja u novčani jaz, sve do optimalnog novčanog jaza, koji determinira maksimalnu profitabilnost, nakon kojeg daljnje produljenje novčanog jaza, odnosno daljnje ulaganje u novčani jaz, uzrokuje smanjenje profitabilnosti poduzeća. Dodatno, profitabilnost poduzeća kao konkavna polinomna funkcija drugog stupnja novčanog jaza podrazumijeva rastuću graničnu profitabilnost s porastom novčanog jaza, odnosno, sugerira da se u zoni prije optimalnog novčanog jaza, za koji se postiže maksimum profitabilnosti, sa svakim jednakim dodatnim produljenjem novčanog jaza profitabilnost poduzeća povećava sve više, dok se u zoni nakon optimalnog novčanog jaza sa svakim jednakim dodatnim produljenjem novčanog jaza profitabilnost poduzeća smanjuje sve manje. Ovi rezultati sugeriraju da poduzeća, u cilju povećanja profitabilnosti, u zoni prije optimalnog novčanog jaza trebaju konzervativno upravljati novčanim jazom, a u zoni

not for large ones, the second hypothesis stating that the enterprise profitability as a concave second-degree polynomial function of the cash gap is independent of enterprise size is rejected. The insignificance and/or inconsistency of the results in large enterprises can be explained by the difficulty to precisely empirically quantify the effect of the cash gap on numerically small sub-samples of enterprises, especially if the effects of other potential profitability determinants, which also determine the cash gap, are considered.

The presented results, which indicate that the enterprise profitability acts as a concave second-degree polynomial function of the cash gap for all enterprises and for medium-sized enterprises, are compatible with the results of the research done by Silva (2011), Baños-Caballero, García-Teruel i Martínez-Solano (2012), Gomes (2013), Thapa (2013), Baños-Caballero, García-Teruel and Martínez-Solano (2014), Valahzaghard and Ghalhari (2014), Aktas, Croci and Petmezas (2015), Afrifa (2016), Afrifa and Padachi (2016), Yilmaz and Acar (2019), Prempeh and Peprah-Amankona (2020) and Hernandez *et al*. (2022). The aforementioned point out that profitability grows with the lengthening of the cash gap, i.e. by investing in the cash gap, up to the cash gap optimum, which determines maximum profitability, after which further cash gap prolongation, i.e. further investment in the cash gap, decreases enterprises' profitability. Moreover, the enterprise profitability as a concave second-degree polynomial function of the cash gap implies that marginal profitability increases with the increase of the cash gap, i.e. it suggests that in the zone before the optimal cash gap, for which maximum profitability is achieved, with each equal additional extension of the cash gap, the enterprise's profitability increases more, while in the zone after the optimal cash gap, with each equal additional cash gap prolongation, the enterprise's profitability decreases less. These results suggest that, in order to increase profitability, enterprises should manage the cash gap

nakon optimalnog novčanog jaza upravljanje ciklusom trebalo bi biti agresivno. S obzirom na to da su medijan i novčani jazovi većine poduzeće-godina opažanja (94%) u zoni ispod detektiranog optimalnog novčanog jaza, odnosno odstupanja od optimalnog novčanog jaza su negativna, a bruto operativni prinosi na imovinu niski, postojeće se strategije upravljanja novčanim jazom promatranih poduzeća ocjenjuju odviše agresivnima i neefektivnima te je preporuka financijskim menadžerima istih da konzervativnije upravljaju novčanim jazom, odnosno produlje novčani jaz do optimalne razine. Ta je sugestija dodatno potencirana činjenicom postojanja pretežito negativnih odstupanja od optimalnog novčanog jaza, za koja se u prethodnim istraživanjima (Baños-Caballero, García-Teruel i Martínez-Solano, 2012; Valahzaghard i Ghalhari, 2014) pokazalo da konzistentno negativno utječu na profitabilnost.

Konačno, rezultati utjecaja kontrolnih varijabli ukazuju na statistički signifikantno pozitivan utjecaj lagiranog bruto operativnog prinosa na imovinu, veličine prodaje i ekonomskog rasta na bruto operativni prinos na imovinu za sva poduzeća te srednja i velika poduzeća. Detektirani utjecaji za lagirani bruto operativni prinos na imovinu u skladu su s primjerice istraživanjima koja su proveli Nobanee (2009), Baños-Caballero, García-Teruel i Martínez-Solano (2012) i Tahir i Anuar (2016), za veličinu prodaje s Deloof (2003), Baños-Caballero, García-Teruel i Martínez-Solano (2014) i Afrifa (2016) te za ekonomski rast s García-Teruel i Martínez-Solano (2007), Lyngstadaas i Berg (2016) i Pais i Gama (2015). Premda, u suglasju s Charitou, Lois i Santoso (2012), Tingbani (2015) i Tahir i Anuar (2016), konzistentno nesignifikantna, ali negativna za cijeli uzorak poduzeća, godišnja stopa rasta prodaje dominantno je, izuzev u *two-step robust* procjenama modela, signifikantno negativna za poduzorke poduzeća po veličini. Potonje je simetrično s Hsieh i Wu (2013) i Gomes (2013). Udio investicija u dugotrajnu

conservatively in the zone before the optimal cash gap, while this should be aggressive in the zone after the optimal cash gap. Given that the median and the cash gaps of most enterprise-year observations (94%) are in the zone below the detected optimal cash gaps, i.e. the deviations from the optimal cash gaps are negative and the gross operating returns on assets are low, the existing cash gap management strategies of the observed enterprises are rated too aggressive and ineffective, and the financial managers of these enterprises are advised to manage the cash gaps more conservatively, i.e. extend the cash gaps to optimal levels. This suggestion is additionally strengthened by the predominantly negative deviations from the optimal cash gaps, which have been shown to affect the profitability consistently negatively in previous research (Baños-Caballero, García-Teruel and Martínez-Solano, 2012; Valahzaghard and Ghalhari, 2014).

Finally, the results of the impact of the control variables indicate a statistically significant positive impact of the lagged gross operating returns on assets, sales volumes and economic growth on gross operating returns on assets for all enterprises and for medium-sized and large enterprises. The detected impact for the lagged gross operating returns on assets is consistent with, for example, research conducted by Nobanee (2009), Baños-Caballero, García-Teruel and Martínez-Solano (2012) and Tahir and Anuar (2016), for sales volumes with Deloof (2003), Baños-Caballero, García-Teruel and Martínez-Solano (2014) and Afrifa (2016), and for the economic growth with García-Teruel and Martínez-Solano (2007), Lyngstadaas and Berg (2016) and Pais and Gama (2015). Although, in agreement with Charitou, Lois and Santoso (2012), Tingbani (2015) and Tahir and Anuar (2016), consistently insignificant but negative for the entire samples of enterprises, the annual sales growth rates are dominantly significantly negative for the sub-samples of enterprises by size, except in

Tablica 5: Sažeti pregled rezultata procjena modela profitabilnosti poduzeća kao konkavne polinomne funkcije drugog stupnja novčanog jaza i kontrolnih eksplanatornih varijabli za sva poduzeća te srednja i velika poduzeća

	ABBB2r	**ABBB1r**	**ABBB1**	**ABBB2rM**	**ABBB1rM**	**ABBB1M**	**ABBB2rL**	**ABBB1rL**	**ABBB1L**
L,GOROA	0,382***	0,385***	0,385***	0,253	0,246**	0,246**	0,488**	0,451***	0,451***
	(3,85)	(4,49)	(4,45)	(1,59)	(1,98)	(2,50)	(2,02)	(3,92)	(3,98)
CG	0,000212	0,000332*	0,000332*	0,000379	0,000354*	0,000354*	0,000543	0,000321	0,000321
	(0,96)	(1,85)	(1,81)	(1,57)	(1,94)	(1,83)	(1,35)	(0,92)	(1,24)
CG^2	-0,00000318*	-0,00000340**	-0,00000340***	-0,00000367**	-0,00000338**	-0,00000338***	-0,00000719**	-0,00000388	-0,00000388
	(-1,84)	(-2,05)	(-3,03)	(-2,16)	(-2,49)	(-3,21)	(-2,00)	(-1,38)	(-1,37)
SS	0,0278***	0,0258***	0,0258***	0,0353***	0,0353***	0,0353***	0,0272*	0,0226***	0,0226***
	(2,89)	(3,65)	(4,85)	(3,18)	(3,94)	(5,21)	(1,81)	(2,93)	(3,06)
GRS	-0,00854	-0,0127	-0,0127	-0,0162	-0,0178*	-0,0178**	-0,0300	-0,0323**	-0,0323**
	(-0,88)	(-1,44)	(-1,42)	(-1,55)	(-1,76)	(-1,97)	(-1,33)	(-2,23)	(-2,23)
SIFA	0,0233	0,0147	0,0147	-0,0358	-0,0460	-0,0460	-0,0206	-0,0723**	-0,0723*
	(0,31)	(0,26)	(0,31)	(-0,41)	(-0,57)	(-0,78)	(-0,31)	(-2,26)	(-1,86)
FL	-0,0208	-0,0203	-0,0203	-0,00374	-0,0135	-0,0135	0,0710	0,0185	0,0185
	(-0,45)	(-0,56)	(-0,64)	(-0,07)	(-0,38)	(-0,45)	(0,85)	(0,63)	(0,63)
EG	0,00427***	0,00519***	0,00519***	0,00428***	0,00449***	0,00449***	0,00888***	0,00856***	0,00856***
	(2,85)	(4,55)	(5,74)	(3,87)	(3,68)	(4,78)	(3,80)	(7,17)	(5,90)
Constant	-0,495**	-0,454***	-0,454***	-0,564**	-0,550***	-0,550***	-0,527*	-0,375***	-0,375***
	(-2,46)	(-3,04)	(-3,83)	(-2,47)	(-2,84)	(-3,90)	(-1,88)	(-2,73)	(-2,66)
Observations	284	284	284	213	213	213	71	71	71

Bilješke: L.GOROA: bruto operativni prinos na imovinu s jednim vremenskim pomakom, CG: novčani jaz, CCC^2: kvadrat novčanog jaza, SS: veličina prodaje, GRS: godišnja stopa rasta prodaje, SIFA: udio investicija u dugotrajnu imovinu, FL: financijska poluga, EG: ekonomski rast.

** p < 0.10, ** p < 0.05, *** p < 0.01*

Izvor: izrada autorica u programskom paketu Stata/SE 14.2.

Table 5: A summary of model estimation results of the enterprise profitability as a concave second-degree polynomial function of cash gap and of control explanatory variables for all enterprises and for medium-sized and large enterprises

	ABBB2r	**ABBB1r**	**ABBB1**	**ABBB2rM**	**ABBB1rM**	**ABBB1M**	**ABBB2rL**	**ABBB1rL**	**ABBB1L**
L.GOROA	0.382***	0.385***	0.385***	0.253	0.246**	0.246**	0.488**	0.451***	0.451***
	(3.85)	(4.49)	(4.45)	(1.59)	(1.98)	(2.50)	(2.02)	(3.92)	(3.98)
CG	0.000212	0.000332*	0.000332*	0.000379	0.000354*	0.000354*	0.000543	0.000321	0.000321
	(0.96)	(1.85)	(1.81)	(1.57)	(1.94)	(1.83)	(1.35)	(0.92)	(1.24)
CG^2	-0,00000318*	-0,00000340**	-0,00000340***	-0,00000367**	-0,00000338**	-0,00000338***	-0,00000719**	-0,00000388	-0,00000388
	(-1.84)	(-2.05)	(-3.03)	(-2.16)	(-2.49)	(-3.21)	(-2.00)	(-1.38)	(-1.37)
SS	0.0278***	0.0258***	0.0258***	0.0353***	0.0353***	0.0353***	0.0272*	0.0226***	0.0226***
	(2.89)	(3.65)	(4.85)	(3.18)	(3.94)	(5.21)	(1.81)	(2.93)	(3.06)
GRS	-0.00854	-0.0127	-0.0127	-0.0162	-0.0178*	-0.0178**	-0.0300	-0.0323**	-0.0323**
	(-0.88)	(-1.44)	(-1.42)	(-1.55)	(-1.76)	(-1.97)	(-1.33)	(-2.23)	(-2.23)
SIFA	0.0233	0.0147	0.0147	-0.0358	-0.0460	-0.0460	-0.0206	-0.0723**	-0.0723*
	(0.31)	(0.26)	(0.31)	(-0.41)	(-0.57)	(-0.78)	(-0.31)	(-2.26)	(-1.86)
FL	-0.0208	-0.0203	-0.0203	-0.00374	-0.0135	-0.0135	0.0710	0.0185	0.0185
	(-0.45)	(-0.56)	(-0.64)	(-0.07)	(-0.38)	(-0.45)	(0.85)	(0.63)	(0.63)
EG	0.00427***	0.00519***	0.00519***	0.00428***	0.00449***	0.00449***	0.00888***	0.00856***	0.00856***
	(2.85)	(4.55)	(5.74)	(3.87)	(3.68)	(4.78)	(3.80)	(7.17)	(5.90)
Constant	-0.495**	-0.454***	-0.454***	-0.564**	-0.550***	-0.550***	-0.527*	-0.375***	-0.375***
	(-2.46)	(-3.04)	(-3.83)	(-2.47)	(-2.84)	(-3.90)	(-1.88)	(-2.73)	(-2.66)
Observations	284	284	284	213	213	213	71	71	71

Notes: L.GOROA: first lag of gross operating return on assets, CG: cash gap, CG^2: square of the cash gap, SS: sales size, GRS: annual growth rate of sales, SIFA: share of investment in fixed assets, FL: financial leverage, EG: economic growth.

** p<0.10, ** p<0.05, *** p<0.01*

Source: Made by the authors in the programme package Stata/SE 14.2.

imovinu, dosljedno rezultatima Bolek (2013), Dinku (2013) i Jamil, Al Ani i Al Shubiri (2015), manifestira konzistentno nesignifikantno pozitivan odnosno negativan utjecaj na profitabilnost svih poduzeća odnosno srednjih poduzeća, ali, u skladu s rezultatima Tingbani (2015) i Afrifa (2016), dominantno signifikantno negativan utjecaj na profitabilnost velikih poduzeća. Naposljetku, utjecaj financijske poluge identificiran je, kao i u istraživanjima koje su proveli Nobanee (2009), Gill, Biger i Mathur (2010) i Bhunia i Das (2012), konzistentno nesignifikantnim, i to negativnim za sva poduzeća i srednja poduzeća te pozitivnim za velika poduzeća.

5. ZAKLJUČAK

Domena ovog rada je upravljanje novčanim jazom, tj. sveobuhvatno upravljanje zalihama, potraživanjima od kupaca i obvezama prema dobavljačima. Navedeno bi općenito trebalo stremiti održavanju harmoniziranih razina elemenata novčanog jaza, što doprinosi postizanju temeljnog cilja poduzeća, odnosno maksimizaciji njegove vrijednosti. U nastojanju postizanja navedenog cilja, menadžeri, temeljem uvažavanja uzajamnosti na relaciji rizik – profitabilnost tolerancije odnosno averzije rizika, kreiraju i implementiraju strategiju upravljanja novčanim jazom koja, ovisno o visini ulaganja u novčani jaz, odnosno duljini novčanog jaza, može biti agresivnije ili konzervativnije naravi. Učinkovitost strategija upravljanja novčanim jazom evaluira se na temelju doprinosa realiziranoj profitabilnosti i vrijednosti poduzeća. Efektivna i efikasna strategija upravljanja novčanim jazom u specifičnoj situaciji može biti agresivnija odnosno konzervativnija, ovisno o međuodnosu prednosti i nedostataka ulaganja u novčani jaz. Shodno tome, cilj ovog rada bio je vrednovati efektivnost upravljanja novčanim jazom sa stajališta kriterija profitabilnosti, tj. istražiti i odrediti profitabilnost kao funkciju upravljanja novčanim jazom srednjih i velikih poduzeća u

the two-step robust estimations of the model. The latter is symmetrical with Hsieh and Wu (2013) and Gomes (2013). The share of investment in fixed assets, consistent with the results of Bolek (2013), Dinku (2013) and Jamil, Al Ani and Al Shubiri (2015), manifests a consistently insignificant positive and negative effect on the profitability of all enterprises and of medium-sized ones respectively, but consistent with Tingbani (2015) and Afrifa (2016), has a dominantly significant negative impact on the profitability of large enterprises. Finally, as in Nobanee (2009), Gill, Biger and Mathur (2010) and Bhunia and Das (2012), the influence of financial leverage was identified as consistently non-significant, negative for all and medium-sized enterprises, and positive for large enterprises.

5. CONCLUSION

The domain of this paper is cash gap management, i.e. the comprehensive management of inventory, trade receivables and trade payables. The aforementioned should generally seek to maintain harmonized levels of cash gap elements, which contributes to achieving the enterprise's fundamental goal, or maximizing its value. In an effort to achieve the stated goal, managers, based on mutual appreciation of the risk – profitability relation, and tolerance or risk aversion, create and implement a cash gap management strategy that can be more aggressive or more conservative depending on the amount of investment in the cash gap, i.e. the length of the cash gap. The effectiveness of the cash gap management strategy is evaluated founded on the contribution to the realized profitability and the enterprise value. An effective and efficient cash gap management strategy can be more aggressive or conservative in a specific situation, depending on the relationship between the pros and cons of investing in cash gap. Accordingly, the goal of this paper was to evaluate the effectiveness of cash gap management from the profitability criteria

hotelskoj industriji u Hrvatskoj. Slijedom cilja istraživanja postavljene su dvije istraživačke hipoteze. Respektirajući rezultate panel regresijske analize, djelomično je za sva poduzeća i srednja poduzeća prihvaćena prva hipoteza da je profitabilnost poduzeća konkavna polinomska funkcija drugog stupnja novčanog jaza. Međutim, druga je hipoteza, da je profitabilnost poduzeća kao konkavna polinomska funkcija drugog stupnja neovisna o veličini poduzeća, odbačena, jer je potonja detektirana za srednja poduzeća, ali ne i za velika poduzeća. Profitabilnost poduzeća identificirana kao konkavna polinomna funkcija drugog stupnja novčanog jaza i postojanje optimalnih novčanih jazova za koje se postižu maksimumi bruto operativni prinosi na imovinu, te činjenice da su medijan i novčani jazovi većine promatranih poduzeća ispod optimalnih, a profitabilnost niska, upućuju na preveliku agresivnost i neefektivnost postojećih strategija te impliciraju govoreći u prilog primjeni konzervativnijih strategija upravljanja novčanim jazom poduzeća u hrvatskoj hotelskoj industriji u cilju povećanja profitabilnosti.

Dok je većina istraživanja usmjerena na istraživanje profitabilnosti kao linearne funkcije novčanog jaza, istraživanja koja analiziraju profitabilnost kao polinomnu funkciju drugog stupnja novčanog jaza malobrojna su. Stoga ovaj rad doprinosi smanjenju navedenog jaza. Predmet postojećih istraživanja su pretežito poduzeća uvrštena na nacionalne burze, a u vidu veličine, to su uglavnom veća poduzeća ili poduzeća svih veličina. U pogledu industrijske razdiobe, najzastupljenije su djelatnosti prerađivačke industrije. Za razliku od toga, predmetno istraživanje uključuje srednja i velika poduzeća iz uslužne djelatnosti, neovisno o njihovoj kotaciji na burzi. Aplikativan doprinos očituje se u mogućnosti vrednovanja efektivnosti upravljanja novčanim jazom poduzeća.

Ograničeni vremenski horizont na razdoblje od 2017. do 2021. godine predstavlja jedan od limitirajućih aspekata ovog

point of view, i.e. to investigate and determine the profitability as a function of cash gap management of medium-sized and large enterprises in Croatia's hotel industry. Following the research objective, two research hypotheses were set. Regarding the results of panel data regression analysis, the first hypothesis, stating that enterprise profitability is a concave second-degree polynomial function of the cash gap, was partially accepted for all enterprises and for the medium-sized ones. However, the second hypothesis, stating that enterprise profitability as a concave second-degree polynomial function of the cash gap is independent of enterprise size, was rejected, as the latter was detected for the medium-sized enterprises, but not for the large ones. The enterprise profitability identified as a concave second-degree polynomial function of the cash gap and the existence of optimal cash gaps for which the maxima of gross operating return on assets are achieved, and the fact that the median value and the cash gaps of most observed enterprises are below optimal and profitability is low, indicate excessive aggressiveness and ineffectiveness of the existing strategies confirming the need for applying more conservative cash gap strategies for enterprises in Croatia's hotel industry in order to increase profitability.

While the majority of studies are focused on examining enterprise profitability as a linear function of cash gap, there are very few studies that analyse the enterprise profitability as a second-degree polynomial function of the cash gap. This study therefore contributes to the reduction of the mentioned gap. The existing studies predominantly tackle the enterprises that are listed on national stock exchanges, and are mostly large enterprises or all sizes. In terms of industrial distribution, the most represented are the manufacturing industry activities. Unlike them, this research includes medium-sized and large enterprises from the service industry regardless of their listing on the stock exchange. The applicable contribution is manifested in

istraživanja. Također, ograničenost na jedan razred djelatnosti onemogućuje komparaciju rezultata s drugim djelatnostima. U cilju smanjenja manjkavosti, buduća istraživanja valja kanalizirati u smjeru uključivanja duljeg razdoblja i drugih djelatnosti, što bi omogućilo provedbu komparativnih analiza i donošenje snažnijih zaključaka.

the ability to evaluate the effectiveness of the enterprise's cash gap management.

The restricted time horizon for the period from 2016 to 2021 is one of the limitations of this research. Likewise, the focus of solely one class of activity makes it impossible to compare the results with other activities. In order to reduce the deficiencies, future research should be conducted over a longer period and include other activities, thus enabling comparative analyses to be carried out and stronger conclusions to be drawn.

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