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THE IMPACT OF THE SPLIT PAYMENT MECHANISM ON FINANCIAL LIQUIDITY IN THE CONSTRUCTION INDUSTRY – IMPLICATIONS FOR RATIO ANALYSIS

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Purpose: The aim of this study is to assess the impact of the split payment mechanism on the financial liquidity of construction companies in Poland and to verify the need to adjust traditional liquidity ratios to account for funds accumulated in VAT accounts. The study seeks to identify the mechanisms through which the split payment mechanism constrains cash availability and affects companies' ability to meet their current liabilities.
Design/methodology/approach: The analysis was conducted on a sample of 72 construction companies. Financial data were obtained from the EMIS database for the period 2023-2024. The study employs ratio analysis, including both conventional and adjusted measures of financial liquidity. The adjusted ratios incorporate proprietary metrics that account for funds held in VAT accounts, enabling an assessment of the impact of the split payment mechanism on cash availability and liquidity levels of the examined entities.
Findings: The results indicate that the split payment mechanism reduces the effective financial liquidity of construction companies, particularly in entities with a higher share of funds accumulated in VAT accounts. Adjustments to traditional liquidity ratios reveal that standard measures may not fully reflect the actual ability of companies to settle current liabilities on time, as they do not consider restrictions on the use of funds held in VAT accounts.
Practical implications: The findings suggest the necessity of applying liquidity ratios adjusted for VAT account balances in financial analyses, monitoring companies with a high proportion of funds in VAT sub-accounts and adapting working capital management to constraints resulting from the split payment mechanism.
Originality/value: This study contributes novel empirical evidence by demonstrating the actual impact of the split payment mechanism on the liquidity of construction companies and justifies the need to apply adjusted liquidity ratios under conditions of restricted cash availability resulting from this mechanism.
Keywords: VAT, split payment mechanism, financial liquidity, cash management, construction industry.
Category of the paper: Research paper.

1. Introduction

The introduction of the split payment mechanism (hereinafter: SPM) into the Polish value added tax system constituted a significant component of measures aimed at tightening the tax system and preventing VAT fraud (Kowal-Pawul, Przekota, 2021; Tratkiewicz, 2017). At the same time, this solution aligns with a broader trend of VAT system reforms implemented across European Union Member States, which are designed to reduce the VAT gap, enhance the transparency of settlements and strengthen control over VAT flows (European Commission, 2017; Tarhova, 2021; Caraus et al., 2017; Herbain, 2018).

Although this mechanism has proven effective from a fiscal perspective (Conrado, 2025), it has generated considerable controversy among businesses, primarily due to its potential adverse impact on corporate financial liquidity (Kowal, 2019). The construction industry is particularly sensitive to such regulatory interventions, as it is characterized by high capital intensity, long contract execution cycles, deferred payment terms and frequent payment bottlenecks (European Commission, 2020).

The construction industry has long been regarded as one of the most high-risk sectors of the economy in terms of financial stability (European Commission, 2021; Semenova, Vitkova, 2019). Statistical data and market analyses indicate that it is precisely within this sector that relatively high levels of corporate insolvency and bankruptcy are observed (Statistics Poland [GUS], 2025; Okereke et al., 2021; Coggins et al., 2016).

The specific nature of construction activity is further associated with the execution of long-term contracts, often extending over several months. During their implementation, companies incur substantial financial outlays related to the purchase of materials, engagement of subcontractors and wage payments, while cash inflows are distributed over time. Invoicing is frequently milestone-based and occurs less regularly than in other sectors, leading to periodic mismatches between cash inflows and outflows (Śnieżek, Kaputa, 2013).

An additional challenge in the construction sector is payment bottlenecks. Delays in settling receivables create a domino effect, exacerbating liquidity problems for subsequent participants in the supply chain. Under such conditions, access to liquid cash resources and the ability to manage working capital flexibly are crucial for the survival of construction companies (Antonowicz, 2013).

The introduction of the mandatory split payment mechanism for construction services further intensifies these challenges by effectively freezing a portion of cash funds in VAT accounts (Kowal & Lichota, 2020). The restricted availability of these funds may deepen liquidity constraints, particularly in situations involving delayed payments from counterparties.

In the existing body of literature, research is predominantly focused on the impact of the split payment mechanism on the VAT gap, entrepreneurs' opinions derived from survey-based studies and regulatory impact assessments prepared by public institutions. There is a notable

lack of empirical studies based on actual financial data of companies, particularly those examining the impact of the SPM on traditional measures of financial liquidity. This research gap is especially pronounced in the construction sector (Section F, PKD), which is both subject to the mandatory split payment mechanism and particularly vulnerable to payment backlogs.

The objectives of the article are as follows:

C1: To present the essence of the split payment mechanism and to identify the channels through which it may potentially affect the financial liquidity of construction companies.

C2: To assess the validity of modifying classical liquidity ratios under the conditions of a mandatory split payment mechanism.

The following research hypotheses are formulated in the study:

H1: *The split payment mechanism negatively affects the financial liquidity of construction companies.*

H2: *Classical liquidity ratios require adjustment for funds accumulated in the VAT account in order to provide a reliable assessment of the financial condition of companies.*

The formulated hypotheses aim to verify the impact of the SPM on financial liquidity and the adequacy of traditional liquidity ratios under conditions of restricted access to VAT-related funds. Their verification contributes to addressing the identified research gap by providing empirical evidence based on data from financial statements.

The first hypothesis is based on the premise that liquidity is a function of cash availability rather than merely its book value. Restricted freedom in managing funds leads to a decline in financial flexibility, allowing the SPM to be interpreted as a form of cash resource segmentation. Consequently, companies may incur additional costs—both related to securing external financing and resulting from lost investment opportunities or disruptions in relationships with counterparties. This issue is particularly significant in sectors with long and irregular cash conversion cycles, such as construction.

The second hypothesis concerns the adequacy of analytical tools used to assess financial liquidity. Traditional ratios are based on the assumption of full availability of current assets, which is no longer valid under the constraints imposed by the SPM. Consequently, these ratios may distort the assessment of actual liquidity risk, potentially justifying the need for their modification to account for funds with restricted availability.

Both hypotheses address complementary aspects of the problem—the actual impact of the regulation and the method of its measurement. Considering them together allows for capturing both the economic and methodological consequences of the SPM.

2. Literature review

2.1. The split payment mechanism in the EU VAT system

The split payment mechanism has been introduced in various European Union countries; however, its specific design has taken diverse forms, adapted to national legal and economic conditions. It should be emphasized that the split payment mechanism is not provided for in Directive 2006/112/EC (Council Directive 2006/112/EC). Therefore, its implementation by Member States is optional and requires the consent of EU institutions, which is primarily contingent upon compliance with the principle of proportionality, understood as the adequacy of the measure to its intended objective while simultaneously limiting excessive administrative and financial burdens on taxpayers (Beshi, Susuri, 2023).

The experiences of individual countries with SPM vary. After a short period of voluntary application, Romania introduced a mandatory SPM model without prior approval from the Council of the European Union (Nicolae, 2017; Lucia, 2017). This solution was met with a negative assessment by the European Commission, which pointed to a lack of proportionality, excessive administrative burdens and the risk of violating the principles underlying the functioning of the VAT system. As a consequence, SPM was ultimately abolished in 2020 (Tarhova, 2021).

In the Czech Republic, a voluntary and manual SPM model is in operation, primarily used as a tool to limit the joint liability of the purchaser. However, due to its non-mandatory nature, it does not play a significant role in systematically combating VAT fraud (Zídková, Šťastná, 2019).

A different approach was adopted in Italy, where SPM was introduced as a mandatory mechanism in transactions with public sector entities and later extended to state-controlled companies (La Grutta, 2015). The Italian model, based on the manual separation of payments and the transfer of the VAT amount directly to the tax administration's account, received the approval of EU institutions and has been repeatedly extended through derogation decisions (Council Implementing Decision (EU) 2023/1552 of 25 July 2023).

In the Netherlands, a system resembling SPM has been introduced, aimed at limiting tax abuses in the provision of personnel leasing services by temporary work agencies and similar entities. For services other than construction or shipbuilding-related activities, the principle of joint liability for the supplier's VAT obligations applies. This liability is exempted if the purchaser deposits the VAT amount into the supplier's designated account, references the invoice details in the payment title and discloses the invoices in the VAT register, declaring no knowledge of the improper use of funds. The funds held in the designated account may be used to pay taxes and social security contributions, while also being available for other purposes, with expenditures subject to auditor oversight. Alternatively, regulations allow

avoiding joint liability by paying the VAT directly to the tax authority's account, without the obligation to maintain a designated account (Fornalik, Jaworska, 2020).

Bulgaria provides an example of negative experience, where SPM, implemented as a tool to combat carousel fraud, was withdrawn after several years due to the lack of expected fiscal effects and a significant deterioration in financial liquidity, particularly in the small and medium-sized enterprise sector. It is emphasized that Bulgaria implemented an isolated SPM system without complementary digitalization tools (as in the cases of Poland or Italy) (Tarhova, 2021).

The experiences of EU countries indicate that the effectiveness and impact of SPM on the economy and business operations largely depend on the adopted design, mandatory nature, coverage, automation and adaptation to the realities of the given market (Mitran, 2017; Caraus, 2017; Ecobici, Bușan, 2017).

In Poland, SPM was introduced into the legal framework through the Act of 15 December 2017 amending the Value Added Tax Act and certain other acts (Act of 15 December 2017, hereinafter referred to as the VAT Act) and has been in force since 1 July 2018. Initially, it was voluntary, but from 1 November 2019 it became mandatory for selected goods and services listed in Annex 15 to the VAT Act, including construction services (Annex 15 to the VAT Act).

The essence of SPM lies in the separation of an invoice payment into two parts: the net amount, which is transferred to the supplier's standard settlement account and the VAT amount, which is credited to a designated VAT account (VAT sub-account). Funds held in the VAT account have limited availability – they can primarily be used to settle public-law obligations, such as VAT, income tax, or social security contributions. A transfer of funds back to the main account requires the approval of the head of the tax office, who has up to 60 days to issue a decision (Lipniewicz, 2022). The tax office may refuse to release funds from the VAT account if there is a risk that such a transfer could impede the settlement of the taxpayer's public-law obligations.

Compared to solutions in other EU countries, the Polish SPM model is characterized by a high degree of automation, broad coverage and substantial mandatory application, encompassing B2B and B2G transactions in selected groups of goods and services, including the construction sector (Harding, 2026). At the same time, the stringent restrictions on the use of funds held in the VAT account mean that the Polish SPM may affect corporate liquidity to a greater extent than solutions operating in other EU countries. For this reason, Poland constitutes a valuable empirical case study from an EU perspective, providing insights relevant for further work on VAT system reform and the assessment of alternative tax collection methods.

SPM is part of the ongoing digitalization of VAT (especially in Poland due to automation); however, among the available tools for tightening the tax system, it is the mechanism that most significantly affects corporate finances (Kowal-Pawul, 2023; Stoicea, Iorga, 2018).

2.2. VAT neutrality and the split payment mechanism

From the perspective of economic theory, VAT is considered a neutral tax for businesses, as it should not influence their economic decisions (Schneider et al., 2022; Acosta-Ormaechea, 2021). This neutrality is achieved through the input tax deduction mechanism, whereby the tax burden is ultimately borne by the final consumer rather than by the entities involved at successive stages of economic turnover (Kogels, 2012; Picos-Sánchez, Thomas, 2015).

From a legal perspective, SPM does not violate the principle of VAT neutrality, as it neither restricts the taxpayer's right to deduct input VAT nor changes the amount of the tax liability. However, the mechanism may affect the economic neutrality of VAT. The requirement to transfer the VAT amount to a designated VAT account (VAT sub-account), the use of which is subject to significant restrictions, leads to a temporary freezing of part of a company's cash. Consequently, this reduces the financial flexibility of business entities and their ability to freely manage cash resources (Stolarski, 2019).

This phenomenon is particularly significant in the construction sector, which is characterized by low profit margins, long contract execution cycles and high working capital requirements. Construction companies often incur substantial expenditures during the project implementation phase before actual payment is received from the client. Under such conditions, limited access to funds held in the VAT account may lead to a deterioration of current financial liquidity, increased reliance on external financing and higher capital servicing costs.

In practice, this means that, despite the formal preservation of VAT neutrality, SPM can produce real economic effects that are reflected in the levels of basic financial ratios of companies. In particular, liquidity ratios and working capital turnover may deteriorate under SPM. For this reason, an analysis of the impact of the split payment mechanism on the financial condition of construction companies must take into account not only tax aspects but also their consequences for liquidity management and the financing structure of business operations.

2.3. The split payment mechanism and financial reporting and analysis

One of the key areas in assessing a company's financial condition is the analysis of its financial liquidity, understood as the ability to meet current obligations on time (Noor et al., 2012; Breuer et al., 2012). In practice, this assessment is primarily based on balance sheet data and classical liquidity ratios, constructed using cash positions and short-term liabilities (Seretidou et al., 2025).

According to the provisions of the Polish Accounting Act (Accounting Act of 1994), funds held in the VAT account do not need to be presented in the balance sheet as a separate item; instead, they are included together with the entity's other cash assets. Information regarding the amount of funds held in the VAT account may be disclosed in the notes to the financial statements; however, such disclosures are neither mandatory nor standardized. As a result, the financial statements, while formally correct, do not always fully reflect the economic

substance of the data presented in terms of cash availability and may not accurately represent the actual financial condition of the enterprise (Zeszyty Metodyczne Rachunkowości, 2025).

This method of presentation may lead to a distorted view of a company's financial liquidity, particularly in analyses based on classical liquidity ratios. These ratios treat all cash as homogeneous and fully available, whereas funds held in the VAT account are subject to significant restrictions on their use. As a rule, such funds can only be utilized to settle specific public-law obligations, which means they cannot be freely used to meet commercial liabilities or to finance ongoing operational activities (e.g., payroll).

As a result, the financial statements may provide a picture of financial liquidity that is formally correct but, from an economic analysis perspective, partially misleading. This particularly applies to entities subject to mandatory SPM, where the proportion of funds held in the VAT account may be significant. In such cases, classical liquidity ratios may be overstated, leading to an inaccurate assessment of the company's ability to meet current obligations.

These circumstances suggest that, under the conditions of SPM, a critical approach to the analysis of financial statement data may be necessary, along with the use of liquidity ratios that reflect the actual availability of cash. This means that financial statements remain a reliable source of information; however, in the context of SPM, their interpretation may require additional analytical adjustments, which could potentially provide a more accurate representation of a company's true liquidity position.

Despite the growing body of literature on the split payment mechanism, existing studies focus primarily on its impact on the VAT gap, regulatory aspects, or entrepreneurs' perceptions. There is a lack of empirical research based on financial statement data that examines how the split payment mechanism affects financial liquidity and the reliability of traditional liquidity ratios. In particular, limited attention has been given to sectors highly exposed to liquidity constraints, such as the construction industry. This gap justifies the need for empirical verification of the impact of restricted VAT funds on liquidity measurement.

3. Methods

The empirical study was conducted on a sample of 72 construction companies classified under Section F of the PKD – Construction. Companies eligible for the study were those whose primary activity falls into the following groups (according to PKD 2007):

- 42.11.Z – Construction of roads and motorways.
- 42.12.Z – Construction of railways and underground railways.
- 42.13.Z – Construction of bridges and tunnels.

These entities publish financial statements in accordance with the Accounting Act (Accounting Act of 1994), including information on funds held in VAT accounts in the notes to the financial statements. The activities carried out are subject to mandatory SPM under Annex 15 to the VAT Act (Annex 15 to the VAT Act).

Table 1.
Information on the sampled construction companies

Company Size	Number of companies	Percentage share
Small	30	41.57%
Medium	27	37.50%
Large	15	20.83%

The classification of companies as small, medium, or large was made in accordance with the criteria specified in Annex I to Commission Regulation (EU) No 651/2014, taking into account the number of employees and either annual turnover or total assets.

Source: Own elaboration based on EMIS data.

Financial data were obtained from the EMIS database and covered the most recent available reporting periods (2023-2024). The study employed ratio analysis, focusing on both classical liquidity measures and ratios adjusted for funds held in the VAT account. Some ratios were developed specifically for this study based on the financial statements of the examined companies, taking into account the restrictions arising from the operation of SPM. Differences between the values of classical and adjusted ratios were used to assess the extent of SPM's impact on the financial liquidity of the entities under study.

In particular, the study included:

- Analysis of the share of funds in the VAT sub-account in total cash holdings (*Share of VAT Account Funds – SVAF*):

$$SVAF = \frac{Funds\ in\ VAT\ sub-account}{Cash\ and\ bank\ balances}$$

A lower *SVAF* is desirable, as the smaller the share of funds in the VAT sub-account, the more flexible the management of cash resources.

- Calculation of the VAT Coverage Ratio for Public Liabilities (*VCR-PL*):

$$VCR - PL = \frac{Funds\ in\ VAT\ sub-account}{Public-law\ liabilities}$$

A value below 1 indicates that all funds can be used to settle liabilities and no freezing of cash occurs, whereas a *VCR-PL* value > 1 indicates that some cash is effectively blocked.

- Assessment of the classical and adjusted cash liquidity ratios (*CR* and *CR'*):

$$CR = \frac{Short-term\ investments}{Current\ liabilities}$$

$$CR' = \frac{Short-term\ investments - Funds\ in\ VAT\ sub-account}{Current\ liabilities - Public-law\ liabilities}$$

- Assessment of trade payables coverage by cash before and after adjustment for funds in the VAT sub-account (*TPCR* and *TPCR'*):

$$TPCR = \frac{Cash\ and\ bank\ balances}{Trade\ payables}$$

$$TPCR' = \frac{Cash\ and\ bank\ balances - Funds\ in\ VAT\ sub-account}{Trade\ payables}$$

The applied research approach enabled a comprehensive assessment of the impact of SPM on the financial liquidity of construction companies, both in the traditional sense and after taking into account the limited availability of a portion of cash resources. The adopted methodology allowed for the identification of differences between classical and adjusted liquidity ratios, as well as an evaluation of the potential distortion in the portrayal of financial liquidity under the operation of this tax mechanism.

The results of the analyses, presented in the following chapter, provide a basis for testing the formulated research hypotheses and for drawing conclusions regarding the significance of SPM for the financial situation of companies in the construction sector.

4. Research results

In this part of the study, a detailed analysis of the collected empirical data was conducted, allowing for the identification of relationships between the operation of SPM and the financial condition of the examined entities. The analysis was structured in a way that enabled a comparison between the traditional approach and the approach taking into account the limitations in the availability of cash resources.

Table 2 presents the share of funds in the VAT sub-account in total cash and bank balances. The values of this ratio are highly statistically significant ($p<0.001$) for each group of companies.

Table 2.
Share of VAT Account Funds in Cash and Bank Balances (SVAF)

	Small (n=30)	Medium (n=27)	Large (n=15)	Total
Mean	0.21	0.38	0.41	0.31
Std.dev.	0.24	0.31	0.37	0.31
Min	0.01	0.05	0.01	0.01
Q25	0.06	0.11	0.07	0.09
Median	0.14	0.29	0.29	0.17
Q75	0.23	0.70	0.83	0.51
Max	0.96	0.99	0.95	0.99

Source: Own elaboration.

In this ratio, the median is reported due to the wide range of values observed in each group – from companies with an almost negligible share of funds in the VAT sub-account to those where the share exceeds 90%. In the small companies group, 50% of entities have a VAT account share equal to or greater than 14%. Similarly, in medium and large companies, the median is equal to or greater than 29%.

Differences are also observed in the third quartile (Q75), where 25% of companies in each group have a share of funds in the VAT sub-account in total cash of at least 23% for small companies, 70% for medium and 83% for large companies.

The mean values amount to 21% for small, 38% for medium and 41% for large companies.

The differences in mean values are statistically significant ($p = 0.0413$). At the same time, the values for small companies significantly differ from those observed in medium and large companies. The median test, however, does not indicate statistically significant differences ($p = 0.1343$).

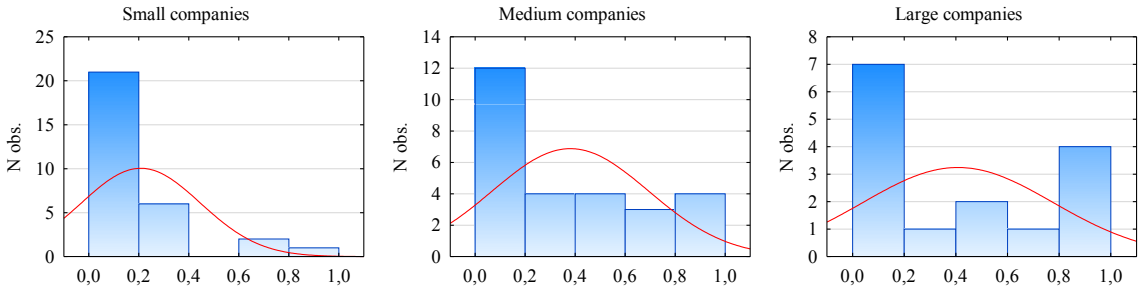

Figure 1. Distribution of the *SVAF* ratio by company size.

Source: Own elaboration.

Companies with an *SVAF* ratio below 20% constitute the largest group in each category. Companies with an *SVAF* ratio above 80% are also observed, particularly among medium-sized and large companies.

The next ratio is the *VCR-PL* (Table 3). The values of this ratio exhibit a very wide range, especially for small and medium-sized companies. Due to this dispersion, significance testing of mean values was not performed.

Table 3.
VAT Coverage Ratio for Public Liabilities (VCR-PL)

	Small (n=30)	Medium (n=27)	Large (n=15)	Total
Mean	342.50	10.78	0.55	146.87
Std.dev.	1194.15	49.60	0.50	781.72
Min	0.01	0.04	0.03	0.01
Q25	0.15	0.46	0.24	0.24
Median	0.49	0.91	0.48	0.62
Q75	4.43	2.08	0.66	2.00
Max	5000.00	258.90	2.09	5000.00
VCR-PL >1	40.0%	44.4%	6.7%	34.7%

Source: Own elaboration.

For small companies, the median value of the *VCR-PL* ratio was 0.49. For medium-sized companies, the median ratio was 0.91. In large companies, the median reached 0.48.

An analysis of the third quartile and maximum values revealed the presence of extreme cases, in which the ratio reached very high levels, clearly exceeding 1 (small companies – Q75 = 4.43 and max = 5000; medium-sized companies – Q75 = 2.08 and max = 258.90; large companies – max = 2.09).

The proportion of companies with *VCR-PL* > 1 is 40.0% for small companies, 44.4% for medium-sized companies and 6.7% for large companies. For small and medium-sized companies, these proportions do not differ significantly from 50% ($p > 0.05$). In large companies, the proportion is significantly lower ($p < 0.05$).

Excluding the funds held in the VAT sub-account from the numerator and public-law liabilities from the denominator of the cash liquidity ratio may result in either an increase or decrease in its value. In Figure 2, the values of the ratio before and after the adjustment are shown along with a 45° line, which represents no change. In general, the ratios align along this line; however, for some companies, they deviate noticeably from the 45° line, sometimes upward and sometimes downward. Consequently, the following section discusses the issue of the differences between the cash liquidity ratios before and after the adjustment.

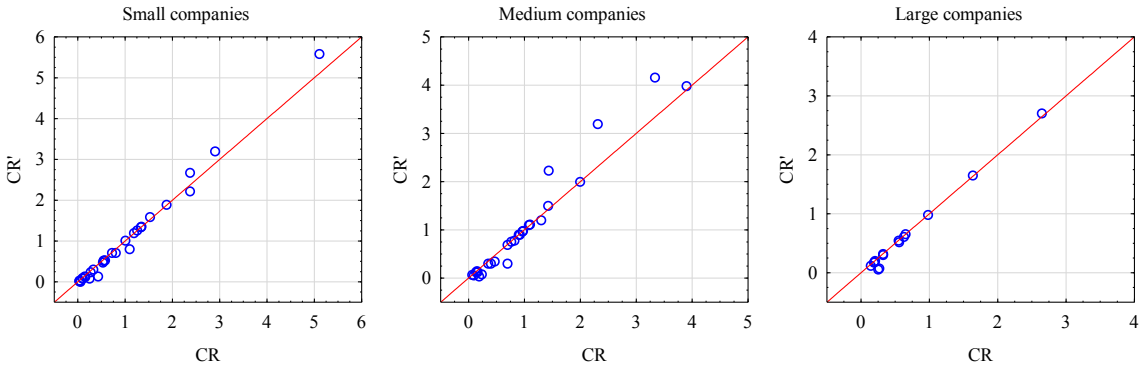

Figure 2. Relationship between the adjusted cash liquidity ratio and the cash liquidity ratio before adjustment.

Source: Own elaboration.

The results regarding the adjustment of the classical cash liquidity ratio are presented in Table 4.

Table 4.
Adjustment of the cash liquidity ratio (difference = CR – CR')

	Small (n=30)	Medium (n=27)	Large (n=15)	Total
Mean	0.0088	-0.0511	0.0320	-0.0088
Std.dev.	0.1515	0.2962	0.0741	0.2092
Min	-0.4800	-0.8765	-0.0635	-0.8765
Q25	-0.0012	-0.0116	0.0012	-0.0001
Median	0.0124	0.0067	0.0148	0.0114
Q75	0.0457	0.0503	0.0242	0.0407
Max	0.3000	0.4000	0.2154	0.4000

If *CR* > *CR'*, the difference is positive, if *CR* < *CR'*, the difference is negative.

Source: Own elaboration.

Depending on the values of the numerator and denominator, the adjusted ratio could take either positive or negative values. Across all groups, mean values do not differ significantly from zero ($p>0.05$). For small and large companies, the mean values are positive, whereas for medium-sized companies, the mean value is negative. However, this difference is not statistically significant, as the mean values do not differ significantly from each other ($p = 0.3952$).

Comparison of the distributions using positional statistics also does not reveal any substantial differences. The median test indicates statistical insignificance ($p = 0.7659$). The lack of meaningful differences is also visible in the distributions shown in Figure 3, where values slightly above 0 clearly dominate in each company group.

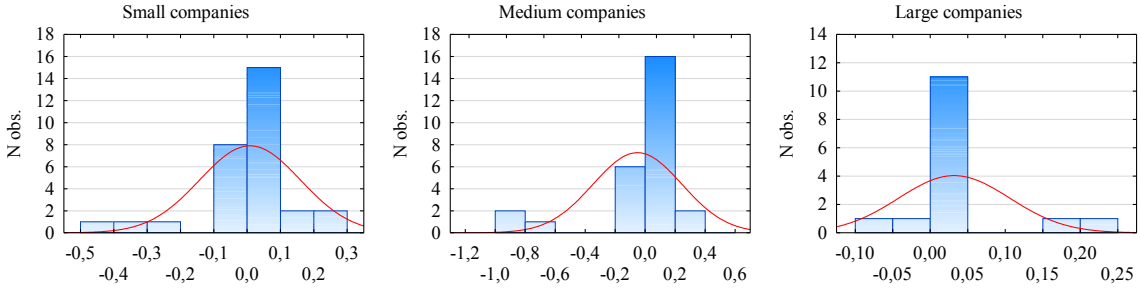

Figure 3. Distribution of the differences between *CR* and *CR'* by company size.

Source: Own elaboration.

Since the mean and median values deviate only slightly from 0, it is worthwhile to examine the values of the ratio that stand out from the typical range (Fig. 4).

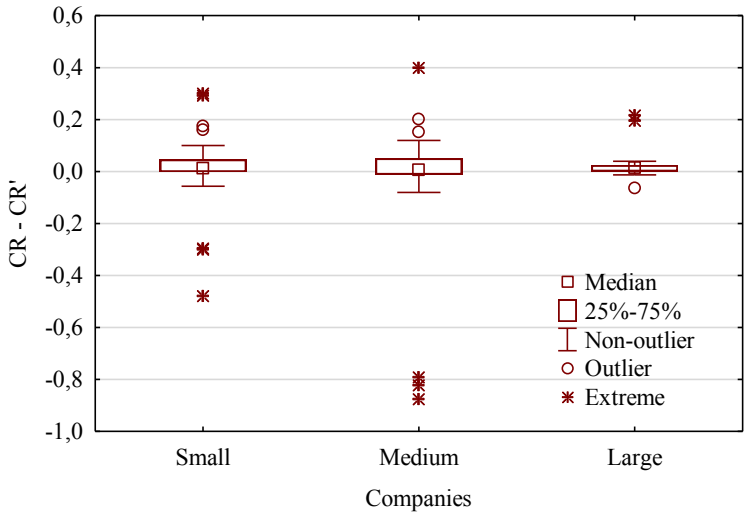

Figure 4. Typical and outlier values of the differences between *CR* and *CR'* by company size.

Source: Own elaboration.

In each company group, there are cases of differences between *CR* and *CR'* that deviate markedly from typical values and in some instances even extreme cases.

It should be emphasized that the classical *CR* ratio does not account for the restrictions on using funds from the VAT sub-account, nor does it distinguish liabilities based on their urgency. From an operational perspective, funds "frozen" in the VAT sub-account cannot be freely allocated to settle other, more pressing obligations, such as payments to suppliers. As a result, the adjusted *CR'* ratio may mathematically indicate improved liquidity (negative difference), which does not reflect the company's actual ability to timely meet its most urgent obligations. Therefore, in companies subject to the split payment mechanism, the classical *CR* ratio – even after adjustment – may not accurately represent the real liquidity situation. This justifies the use of an alternative measure – the *TPCR* – which does not suffer from this limitation (Fig. 5).

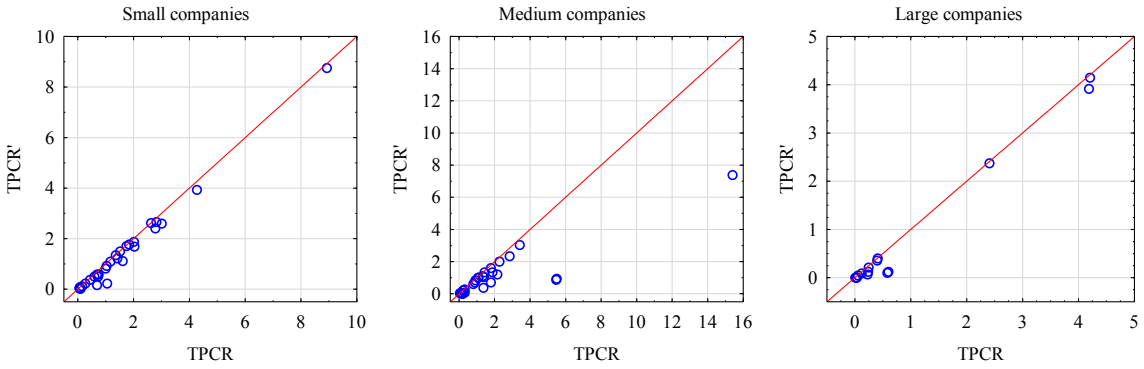

Figure 5. Relationship between the *TPCR* and the *TPCR.*

Source: Own elaboration.

Since the adjustment of the *TPCR* affects only the numerator, the values of the ratio after adjustment are lower than those before adjustment. This is visible in Figure 5, where the points are positioned below the 45° line. It is worth noting, however, that for some companies the deviation from the 45° line is quite pronounced. A detailed description of the differences between the *TPCR* before and after adjustment is presented in Table 5.

Table 5.
Adjustment of the Trade Payables Coverage Ratio (difference = TPCR – TPCR')

	Small (n=30)	Medium (n=27)	Large (n=15)	Total
Mean	0.1814	0.9045	0.1212	0.4400
Std.dev.	0.1927	1.8496	0.1669	1.1854
Min	0.0100	0.0054	0.0024	0.0024
Q25	0.0404	0.1000	0.0279	0.0391
Median	0.1156	0.2047	0.0339	0.1217
Q75	0.2394	0.5535	0.1651	0.3430
Max	0.8380	8.0125	0.5002	8.0125

Source: Own elaboration.

The adjustment of the *TPCR* is statistically significant for each company group ($p < 0.05$). The group of medium-sized companies, however, stands out, showing significantly greater differences between the original and adjusted ratios compared to small and large companies (mean test $p = 0.0335$, median test $p = 0.0408$).

The analysis of the adjusted Trade Payables Coverage Ratio (*TPCR'*) indicates the extent to which funds frozen in the VAT sub-account affect the actual operational liquidity of the surveyed companies. The median differences between the ratio before and after adjustment are 0.1156 for small companies, 0.2047 for medium-sized companies, and 0.0339 for large companies.

The minimum and maximum values reveal the presence of extreme cases – in some companies the adjustment is practically zero, while in others it is substantial (up to 0.8380 in small, 8.0125 in medium-sized, and 0.5002 in large companies).

Compared to the adjustment of the classical cash liquidity ratio (*CR – CR'*), the differences in *TPCR'* are clearly larger and more significant. This is because *TPCR* directly relates to trade payables, while funds held in the VAT sub-account remain unavailable for their settlement.

5. Discussion

The results obtained allow for an in-depth interpretation of the impact of the SPM on the financial liquidity of construction companies and their reference to the existing body of literature. The conducted research confirms that restricting the availability of cash accumulated in VAT accounts can have a negative impact on the financial liquidity of companies. This finding is consistent with studies available in the literature (Kowal, 2019; Szerszeniewska, 2019; Madurski, 2021).

At the same time, it should be emphasized that previous research in this area relied primarily on qualitative methods, such as interviews or survey research, as well as on legal and regulatory analyses.

The results concerning the *SVAF* indicate a clear differentiation between companies and an upward trend along with the scale of operations. This is demonstrated by both the average values and the results in individual quartiles. Simultaneously, it should be noted that in the case of entities with a very high share of funds in the VAT account (above 80%), almost all cash resources remain deposited in this account, which implies a significant restriction of operational liquidity. This phenomenon is particularly evident in the group of medium and large companies. On the other hand, entities with a relatively low share of funds in the VAT account also dominate in each of the analyzed groups, which indicates a significant diversification of the liquidity situation of companies and their experience with SPM.

An interesting fact is that a high level of "frozen" funds is also observed in medium and large companies. Although the literature indicates that larger entities – due to greater diversification of financing sources – are potentially less exposed to liquidity constraints (Ainsworth, 2019), the obtained results suggest that the scale of funds maintained in VAT

accounts in these entities may lead to significant restrictions on cash availability. It should be emphasized that, according to earlier studies, tax regulations regarding VAT, such as the split payment mechanism or reverse charge, can significantly affect the financial liquidity of companies, particularly in the construction sector (Kútna et al., 2018; Szerszeniewska, 2019). The literature also highlights that this industry and the SME sector are characterized by high demand for working capital and relatively long settlement cycles, which increases their sensitivity to liquidity constraints.

For most of the surveyed companies, the *VCR-PL* takes values below 1, which indicates the possibility of using funds accumulated in the VAT account to settle public law liabilities and a limited scale of liquidity blockage. At the same time, in some companies, there is a surplus of funds, which generates the risk of them being "frozen" – this phenomenon affects a significant part of the entities, especially in the group of small and medium-sized companies, where its scale is noticeable and may cover a significant percentage of the surveyed units. This phenomenon was previously identified in survey research, in which entrepreneurs pointed to the problem of surplus funds "frozen" in VAT accounts (Kowal, 2019). However, the results of this study allow for its quantitative identification and determination of the scale of this phenomenon.

Of particular importance are the results concerning the classic *CR* and its modification. The conducted analyses indicate that taking into account the limited availability of funds accumulated in the VAT account does not lead to statistically significant changes in the value of this ratio. Simultaneously, in individual cases, significant deviations are observed, which may lead to a different assessment of the company's liquidity situation. This means that classic liquidity ratios may not fully reflect the actual ability of companies to settle liabilities, which is consistent with previous observations regarding the limitations of ratio analysis based solely on balance sheet data (Zimon et al., 2022).

This mechanism is further corroborated by the literature, which indicates that prior to the implementation of the SPM, companies utilized funds equivalent to the VAT amount to finance their day-to-day operating activities (Szerszeniewska, 2019; Madurski, 2021). Restricting access to these resources, therefore, necessitates the search for alternative sources of financing and increases the significance of working capital management.

In this context, the results regarding the *TPCR* are of particular importance. In contrast to the classic liquidity ratio, its modification leads to statistically significant changes, indicating its greater sensitivity to the constraints arising from the functioning of VAT accounts. This finding confirms that the structure of liabilities and the actual availability of cash resources are of key importance for the assessment of financial liquidity, which is reflected in studies on working capital management (Deloof, 2003; García-Teruel, Martínez-Solano, 2007).

A particularly interesting result is the stronger effect of the *TPCR* adjustment in medium-sized enterprises. This phenomenon may result from their specific position between small and large entities. On the one hand, these enterprises are characterized by a relatively high demand

for working capital resulting from the scale of operations, but on the other hand – they do not have as wide access to external sources of financing as large entities. As a result, restricting the availability of funds in VAT accounts may to a greater extent affect their ability to settle trade payables. Simultaneously, compared to small enterprises, their structure of liabilities is more complex, which further increases sensitivity to liquidity disruptions.

Small companies are often characterized by a high degree of flexibility. They can adjust their activities more quickly to changing market conditions, and their organizational structures are simpler, which favors faster decision-making. In practice, this means that they are able to partially mitigate the impact of the SPM mechanism on their financial liquidity, for example through a selective approach to contracts; moreover, they generally manage cash flows on a smaller scale. In turn, large enterprises have resources that allow them to neutralize the negative effects of this type of regulation. They have access to a wider range of financing sources, and most importantly, their strong market position enables them to negotiate more favorable payment terms with counterparties. Thanks to this, they are able to better cope with constraints resulting from the temporary "freezing" of funds in VAT accounts.

Against this background, medium-sized companies may fare worse, as on the one hand they have already lost the flexibility typical of small entities, and on the other hand, they have not yet achieved the scale and resources characteristic of large entities. As a result, medium enterprises find themselves in a situation where various types of constraints accumulate: relatively high exposure to regulations and limited adaptive capabilities compared to small enterprises, as well as a weaker negotiating position in relation to large enterprises. It is this combination of factors that makes the effects of introducing the split payment mechanism potentially more severe for them than for other groups of enterprises, placing them in a relatively least favorable position compared to the other groups.

Conducted empirical analyses confirm that the classic cash ratio (*CR*), even after its modification (*CR'*), does not fully reflect the actual impact of the SPM on the ability of enterprises to settle current liabilities, because it does not take into account the structure or urgency of these liabilities. In contrast, the *TPCR* ratio allows for a better capture of the actual availability of financial resources, especially in enterprises with a high share of funds accumulated in VAT accounts.

The results obtained confirm hypothesis *H1* regarding the negative impact of the split payment mechanism on the financial liquidity of construction companies, as well as hypothesis *H2*, indicating the need to adjust classic liquidity ratios under SPM conditions.

The conclusions drawn from the study have important both theoretical and practical implications. From a theoretical perspective, they indicate the need for further development of financial liquidity measurement methods that take into account institutional (legal, tax) restrictions on access to cash. From a practical perspective, they emphasize the need to increase the transparency of financial information by separating funds accumulated in VAT accounts in financial reporting or their mandatory disclosure in the notes to the financial statements.

The conducted study not only confirms previous findings regarding the negative impact of SPM on corporate liquidity but also brings new value through the application of classic and modified liquidity ratios based on enterprises' financial data. The introduction of ratios such as *SVAF* and *VCR-PL* enables a more precise capture of the "frozen" cash phenomenon and reduces the risk of misinterpretation of the liquidity situation of enterprises in ratio analysis.

The conducted research makes an important contribution to the analysis of the impact of the split payment mechanism on the financial liquidity of construction enterprises, yet it has certain limitations. The primary research limitation is the analysis of 72 enterprises from the construction sector, which limits the possibility of generalizing the results to other industries. The specificity of the construction sector – in particular long settlement cycles and high sensitivity to payment bottlenecks – may affect the scale of the observed effects. However, even if the presented effects are overestimated, the very process of the split payment mechanism's impact on other enterprises will be fundamentally analogous, with its significance being at most weaker. This, however, does not exempt from the need to adjust ratios, since it is assumed that they are intended to show a true picture of the enterprise's financial condition. Another limitation is the time of the study, namely relying on financial data for the period 2023-2024, which means that the study is short-term in nature and does not take into account long-term changes or the adaptive effects of enterprises to functioning under the split payment mechanism. Looking at the very construction of the mechanism, it can be assumed that the timing of the study does not have a great significance for the results obtained, but it is always worth having a long-term perspective as well. Another limitation may be the problem of information constraints, in particular the presentation of data in financial statements. Sometimes this may affect the accuracy of measuring actual cash availability.

At the same time, directions for further research should be indicated. In particular, it seems justified to extend the analysis to other sectors of the economy and to include additional variables, such as the cash conversion cycle, credit policy of companies, or access to external financing. An important direction for future research would be the analysis of the relationship between the level of frozen funds in VAT accounts and the actual frequency of payment delays or insolvency incidents in the studied sector.

Thus, the study creates a basis for further analysis, in particular in the scope of:

- inter-sectoral comparisons,
- analysis of the long-term effects of using SPM,
- inclusion of additional factors affecting the financial liquidity of companies.

Generally, the research allows for recognizing the issue of the split payment mechanism's impact as important; therefore, it is worth conducting a re-evaluation in the future, perhaps after a longer period since its introduction, taking into account a larger number of economic sectors and a larger number of companies. Perhaps successively implemented solutions in the field of digitalization will make it possible to conduct ongoing verification of enterprise liquidity issues and rapid corrective reactions at the institution-enterprise interface.

6. Conclusion

The conducted study has allowed for a comprehensive assessment of the impact of the split payment mechanism on the financial liquidity of construction companies using empirical data. The results indicate that accounting for the restricted availability of funds accumulated in VAT accounts leads to a different assessment of the liquidity position than when classical measures are applied. This implies that the traditional approach to liquidity analysis may lead to overly optimistic conclusions regarding the ability of companies to settle their current liabilities.

A significant contribution of this research is the proposal and empirical verification of ratios that distinguish between operationally available funds and funds with limited utility. In particular, the use of ratios such as *SVAF* and *VCR-PL*, along with modified versions of classic liquidity ratios, allows for a more precise capture of the actual financial situation of enterprises operating under a mandatory SPM. This approach contributes to the development of financial analysis methods by incorporating institutional (tax) constraints on access to cash resources.

The study's findings also carry substantial practical significance. They highlight the necessity for a cautious interpretation of classical liquidity ratios in companies subject to SPM and the need to consider the structure and availability of cash. From a financial reporting perspective, it seems justified to increase the transparency of information regarding funds held in VAT accounts, which could reduce the risk of stakeholders misjudging the financial health of companies. More broadly, the results contribute to the development of research on the impact of fiscal policy instruments on business activity, pointing to the need to consider their consequences not only for state budget revenues but also for the financial stability of economic entities, upon which, after all, state budget revenues depend.

The conclusions drawn from observing the situation of medium-sized companies compared to small and large ones – which emerged alongside the tested hypotheses – are of significant importance for a broader reflection on the design of economic regulations. They demonstrate that the impact of fiscal policy instruments is not distributed evenly across all companies, and that entities positioned "in between" require special attention – being too developed to benefit from the flexibility of the smallest companies, yet not yet strong enough to fully exploit economies of scale.

Despite the findings obtained, it must be emphasized that the proposed approach requires further analysis. In particular, it is justified to extend the research to other sectors of the economy and to analyze the relationship between the level of "frozen" funds and actual liquidity problems, such as payment delays or insolvency cases. These directions may contribute to the further refinement of financial liquidity assessment tools under institutional (tax) constraints.

References

1. Accounting Act of 29 September 1994 (Journal of Laws of 1994, No. 121, item 591).
2. Acosta-Ormaechea, S., Morozumi, A. (2021). The value-added tax and growth: design matters. *International Tax and Public Finance*, *28(5),* 1211-1241. https://doi.org/10.1007/s10797-021-09681-2
3. Act of 15 December 2017 amending the Act on Goods and Services Tax and certain other acts (Journal of Laws 2018, item 62).
4. Antonowicz, P. (2013). Zatory płatnicze i problemy z utrzymaniem płynności finansowej jako determinanty upadłości przedsiębiorstw branży budowlanej. In: E. Mączyńska (Ed.), *Bankructwa przedsiębiorstw. Wybrane aspekty ekonomiczne i prawne* (pp. 95-111). Warsaw: Szkoła Główna Handlowa – Oficyna Wydawnicza.
5. Beshi, S., Susuri, D. (2023). Proportionality Principle in the CJEU Judgments on Tax Cases. *Lex Portus*, *9(4),* 28-39. https://doi.org/10.26886/2524-101X.9.4.2023.3
6. Breuer, A., Frumusanu, M.L., Breuer, B.L., Manciu, A. (2012). Cash and liquidity/liquidity and liquidity ratio. *Annals-Economy Series, 4,* 78-82.
7. Caraus, I.G., Caraus, M., Stanese, I.T., Dobrota, G. (2017). The VAT split-payment mechanism, measure for combating tax evasion in Romania. *Annals-Economy Series*, *2,* 47-52.
8. Coggins, J., Teng, B., Rameezdeen, R. (2016). Construction insolvency in Australia: reining in the beast. *Construction Economics and Building*, *16(3),* 38-56. https://doi.org/10.5130/AJCEB.v16i3.5113
9. Conrado, C.V.T. (2025). *As dificuldades de implementação do Split Payment na União Europeia e as lições para a introdução do mecanismo no Brasil*. https://repositorio.fgv.br/server/api/core/bitstreams/8fe5e5ee-c645-4361-8a69-d0be9d59d2a5/content
10. Council Directive 2006/112/EC of 28 November 2006.
11. Council Implementing Decision (EU) 2023/1552 of 25 July 2023 amending Implementing Decision (EU) 2017/784 as regards the period of authorisation for, and the scope of, the special measure derogating from Articles 206 and 226 of Directive 2006/112/EC on the common system of value added tax taken by Italy.
12. Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? *Journal of Business Finance Accounting*, *30(3-4),* pp. 573-588. https://doi.org/10.1111/1468-5957.00008
13. European Commission (2014). Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty (General Block Exemption Regulation) [Annex I: Definition of SMEs]. *Official Journal of the European Union*, *L 187*, 1-78. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0651

14. European Commission (2017). *Analysis of the impact of the split payment mechanism as an alternative VAT collection method: Final report – executive summary*. Brussels: Directorate-General for Taxation and Customs Union. Written by Deloitte. Retrieved from: https://taxation-customs.ec.europa.eu/system/files/2018-01/split_payment_report_execsummary_2017_en.pdf, 11.02.2026.
15. European Commission (2020). *Late payment in the construction sector: Analytical report (European Construction Sector Observatory).* April 2020. Retrieved from: https://ec.europa.eu/docsroom/documents/41561, 16.01.2026.
16. European Commission (2021). *European Construction Sector Observatory country profile: Poland (September 2021).* European Commission. Retrieved from: https://single-market-economy.ec.europa.eu/system/files/2021-11/ECSO_CFS%20Poland_2021.pdf, 16.02.2026.
17. Fornalik, J., Jaworska, M. (2020). *Obowiązkowy split payment*. Warsaw: C.H. Beck.
18. García- Teruel, P.J., Martínez- Solano, P. (2007). Effects of working capital management on SME profitability, *International Journal of Managerial Finance*, *3(2),* pp. 164-177. https://doi.org/10.1108/17439130710738718
19. Główny Urząd Statystyczny (GUS) (2025). *Rejestracje i upadłości przedsiębiorstw w 3 kwartale 2025 r.* Retrieved from: https://stat.gov.pl/obszary-tematyczne/podmioty-gospodarcze-wyniki-finansowe/przedsiebiorstwa-niefinansowe/rejestracje-i-upadlosci-przedsiebiorstw-w-3-kwartale-2025-r-,29,27.html, 16.01.2026.
20. Harding, D. (2026). *Poland Split Payment Mechanism: Invoice Requirements Guide*. Retrieved from: https://invoicedataextraction.com/blog/poland-split-payment-mechanism, 16.01.2026.
21. Herbain, C.A. (2018). Fighting VAT fraud and enhancing VAT collection in a digitalized environment. *Intertax*, *46*, 579-583. https://doi.org/10.54648/taxi2018060
22. Kitowski, J. (2015). *Metody dysryminacyjne jako instrument zagrożenia upadłością przedsiębiorstw.* Rzeszów: Wydawnictwo Uniwersytetu Rzeszowskiego.
23. Kogels, H. (2012). Making VAT as neutral as possible. *EC Tax Review, 21(5),* 230-232. https://doi.org/10.54648/ecta2012023
24. Kowal, A., Lichota, W. (2020). Proces cyfryzacji podatku VAT w Polsce. *Studia Prawno-Ekonomiczne*, *CXV*, 265-282. https://doi.org/10.26485/SPE/2020/115/15
25. Kowal. A. (2019). Split payment mechanism in the economy of small and medium-sized enterprises. *Zeszyty Naukowe Małopolskiej Wyższej Szkoły Ekonomicznej W Tarnowie*, *44(4),* 39-51. https://doi.org/10.25944/znmwse.2019.04.3951
26. Kowal-Pawul, A. (2023). *Ekonomiczne uwarunkowania i konsekwencje cyfryzacji podatku od towarów i usług w Polsce.* Poznań: Wydawnictwo Naukowe Bogucki.
27. Kowal-Pawul, A., Przekota, G. (2021). Importance of VAT digitization for income disclosure in section F-construction – a case for Poland. *Journal of International Studies*, *14(4),* 67-86. https://doi.org/10.14254/2071-8330.2021/14-4/5

28. Kútna, A., Gyurián, N., Šeben, Z. (2018). Impact of the VAT Reverse-Charge Mechanism on The Cash Flows of Construction Companies in the Slovak Republic. *CBU International Conference Proceedings*, *6*, pp. 522-528. https://doi.org/10.12955/cbup.v6.1318
29. La Grutta, S. (2015). Split-Payment Mechanism for Public Bodies. *International VAT Monitor*, *26(2).* https://doi.org/10.59403/1kyz0st
30. Lipniewicz, R. (2022). Split Payment Mechanism as a VAT collection method: evidence from Poland. *EC Tax Review*, *31(4),* 219-230. https://doi.org/10.54648/ecta2022021
31. Lucia, P.P. (2017). Controversies on the application of the VAT split payment mechanism. *Annals-Economy Series*, *1*, 36-41.
32. Madurski, S. (2021). Shadow economy and attempts to combat it — split payment as a remedy for previous legal regulations. *Studenckie Prace Prawnicze Administratywistyczne i Ekonomiczne*, *35*, 137-154. https://doi.org/10.19195/1733-5779.35.9
33. Mitran, D. (2017). European trends in split VAT. *Internal Auditing and Risk Management*, *48(4),* Athenaeum University of Bucharest, 43-50.
34. Nicolae, E., Buşan, G. (2017). Introduction of VAT split payment mechanism in Romania – compulsory versus optionally. *Annals of 'Constantin Brancusi' University of Targu-Jiu. Economy Series*, *1,* 116-121.
35. Noor, M.I., Nour, A., Musa, S., Zorqan, S. (2012). The role of cash flow in explaining the change in company liquidity. *Journal of Advanced Social Research, 2(4),* 231-243.
36. Okereke, R.A., Ejekwu, T.B., Ohamma, V.O. (2021). An evaluation of insolvency and its causes in the construction industry. *International Journal of Environment, Engineering and Education*, *3(3),* 115-121. https://doi.org/10.55151/ijeedu.v3i3.65
37. Picos-Sánchez, F., Thomas, A. (2015). A revenue-neutral shift from SSC to VAT: analysis of the distributional impact for 12 EU—OECD countries. *FinanzArchiv/Public Finance Analysis*, 278-298. https://www.jstor.org/stable/24807491
38. Schneider, G., Stähler, F., Thunecke, G.U. (2022). The (Non-)Neutrality of Value-Added Taxation. *CESifo Working Paper Series*. https://www.ifo.de/cesifo/wcP
39. Semenova, T., Vitkova, E. (2019, February). Impact of macroeconomic indicators on the financial stability of construction companies in the Czech Republic and Spain. In: *IOP Conference Series: Materials Science and Engineering*, *vol. 471, no. 2* (p. 022030). IOP Publishing. https://doi.org/10.1088/1757-899X/471/2/022030
40. Seretidou, D., Billios, D., Stavropoulos, A. (2025). Integrative Analysis of Traditional and Cash Flow Financial Ratios: Insights from a Systematic Comparative Review. *Risks*, *13(4),* 62. https://doi.org/10.3390/risks13040062
41. Śnieżek, E., Kaputa, J. (2013). Wybrane aspekty realizacji kontraktów długoterminowych w sektorze budowlanym w Polsce. *Zeszyty Towarzystwa Rachunkowości*, *74(130),* 109-129. https://doi.org/10.5604/16414381.1085928

42. Stoicea, P., Iorga, A.M. (2018). The effects of VAT split payments measure on insolvent agricultural companies. *Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development*, *18(2),* 457-462.
43. Stolarski, K.J. (2019). *Split payment VAT collection mechanisms and their impact on the EU market of payment technologies and services*. Proceedings of the Management International Conference, 39-45. https://doi.org/10.26493/978-961-6832-68-7.4
44. Szerszeniewska, I. (2019). Zarządzanie płynnością podmiotów budowlanych w kontekście wprowadzenia przez polskiego ustawodawcę mechanizmu podzielonej płatności. *Zeszyty Naukowe Politechniki Częstochowskiej Zarządzanie*, *35(1),* pp. 149-161. https://doi.org/10.17512/znpcz.2019.3.13
45. Tarhova, E. (2021). VAT Split Payment – A Tricky Matter of Aiming at the Best Design and Combination. *Financial Law Review*, 107-124. https://doi.org/10.4467/22996834FLR.21.008.13637
46. Tratkiewicz, T. (2017). Model podzielonej płatności – remedium na oszustwa w VAT? *Annales Universitatis Mariae Curie-Skłodowska. Sectio H – Oeconomia*, *51(6),* 475-484. https://doi.org/10.17951/h.2017.51.6.475
47. Zeszyty Metodyczne Rachunkowości (2025). *Mechanizm podzielonej płatności (MPP) w ujęciu podatkowym i bilansowym*, *14(638),* 16. Retrieved from: https://czasopismaksiegowych.gofin.pl/zeszyty-metodyczne-rachunkowosci/archiwum-rocznikowe/323371/mechanizm-podzielonej-platnosci-mpp-w-ujeciu-podatkowym-i-bilansowym, 01.03.2026.
48. Zídková, H., Šťastná, A. (2019). VAT Collection Methods. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *67(3),* 883-895. https://doi.org/10.11118/actaun201967030883
49. Zimon, G., Nakonieczny, J., Chudy-Laskowska, K., Wójcik-Jurkiewicz, M., Kochański, K. (2022). An Analysis of the Financial Liquidity Management Strategy in Construction Companies Operating in the Podkarpackie Province. *Risks*, *10, 5.* https://doi.org/10.3390/risks10010005