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METHODOLOGY FOR ASSESSING THE TURNOVER PERIOD OF GOODS IN INTERNET BUSINESS

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The article discusses the methodology for calculating the turnover coefficient and period of turnover of inventory for a company with irregular stock on hand. It emphasizes the importance of the indicator characterizing the turnover of working capital associated with inventory. A scientific and methodological approach is proposed for evaluating the product turnover period to optimize and enhance the efficiency of managing an e-commerce business. The article identifies the problems that arise when using the classical method for calculating the turnover coefficient and turnover period of goods and demonstrates the challenges of automatically calculating these indicators using alternative calculation schemes proposed by Ukrainian and foreign authors. A new algorithm for calculating the turnover period of goods based on an “event-based” approach is proposed. This methodology involves capturing the timing of “events” such as the purchase and sale of goods, which represent moments when funds are tied up in inventory and then returned to circulation. Model examples illustrate the accurate calculation of the turnover period for irregular goods that may temporarily be absent from a company’s inventory. The ability to automatically calculate these indicators for a significant number of product items is also demonstrated. The methodology proposed by the authors is universal and does not require additional conditions when calculating turnover indicators, whether for regularly stocked items, periodically stocked items, or seasonally stocked items. The methodology is not limited by the calculation period and can be equally effective for short and long calculation periods. Automating the calculation of inventory turnover based on the proposed “event-based” algorithm significantly enhances the efficiency of managing e-commerce businesses and improves the methodology of ABC analysis of a company’s product portfolio. The authors’ methodology for calculating the turnover period of goods is original, with no similar methods found in other publications related to the turnover of working capital associated with a company’s inventory.

Keywords: Internet business, turnover ratio of goods, term of turnover of goods, optimisation of commodity stocks, business efficiency.

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Introduction and problem statement

Modern Internet business is a type of business that uses the Internet and related technologies to conduct commercial transactions and interact with customers. It covers a wide range of activities from e-commerce to digital marketing and online finance.

Internet business in today’s world provides a wide range of business opportunities.

Global access: The Internet enables enterprises to do business and communicate with customers around the world without geographic limitations.

Ease of start-up: The Internet allows startups

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and entrepreneurs to open a business with minimal infrastructure and advertising costs.

Effective marketing: Online channels provide an opportunity to aim advertising precisely at the target audience, which makes advertising campaigns more effective.

Customer convenience: Online businesses offer convenience of shopping and customer service through websites, applications, and email.

Analytics and data processing: Data analysis tools allow companies to improve their strategies and make management decisions based on objective data.

Saving time and resources: Automation and Internet technologies help to reduce the labor intensity of business processes.

Increased competitiveness: Having an online presence helps businesses compete in the market and attract new customers.

Development of new business models: The Internet creates new opportunities for the development of innovative business models, such as subscription, working with data, franchising and many others.

In general, internet business has become an integral part of the modern economy, and its importance continues to grow with the advancement of technology and changing consumer habits. In the rapid pace of business development, it is crucial to evaluate the effectiveness of investing financial resources in various products, swiftly and effortlessly prioritize between different items, and make instant decisions regarding purchases and dealing with specific products.

One of the key and most visually evident indicators of the efficiency of invested working capital in specific product items is inventory turnover. The use of the inventory turnover metric (often referred to as inventory turnover ratio) in internet businesses holds significant importance, as it allows for the assessment of inventory management efficiency and the financial productivity of a company. Monitoring inventory turnover is particularly crucial for companies with substantial investments in inventory. Even a slight change in inventory turnover leads to substantial liquidity and additional profit.

Numerical characteristics of turnover are the turnover ratio R_t and the turnover period T_t of goods. The Turnover Ratio R_t defines how many turnovers the average stock makes for the specified period. The Turnover Period P_t is the duration of one turnover in days or months.

The turnover ratio can help evaluate the performance of investments in different online platforms, such as websites, online stores or applications. The turnover ratio can also be useful for evaluating the effectiveness of various marketing

strategies in the Internet business. For example, the effectiveness of content marketing, social media advertising, or email marketing can be compared and it can be determined which strategies bring the most revenue relative to costs.

By analyzing the costs of development and maintenance of the platform and the revenues received from its use, it is possible to determine how efficiently resources are used and how financial performance can be improved.

The inventory turnover period in the Internet business determines how quickly goods are sold in the electronic network and are replaced by new requests for these goods from buyers. The shorter the turnover period is, the more efficiently the Internet business functions and the more profit it generates.

Also, the turnaround time allows you to determine the effectiveness of advertising campaigns. By comparing the costs of advertising and the income received, it is possible to determine how effectively advertising resources are used and which advertising channels bring the greatest results.

From the above, it can be seen that the use of an effective method of calculating the turnover period and turnover ratio of inventories in Internet business technology is relevant and plays almost the key role in business development.

The classic scheme for calculating these indicators based on the average value includes the following steps.

First. Calculate the average value of inventory over a specified period of time. To do this, add the inventory value at the beginning of the period to the inventory value at the end of the period, then divide the result by two.

Second. Calculate the volume of sales over the same period of time. This can be the sum of all sales during the period or the quantity of units of a product sold during the period.

Third. Calculate the inventory turnover ratio. It is determined by the ratio of the volume of sales to the average value of inventory. This indicator shows how many times the inventory was sold and replenished with new stock during the period.

Forth. Calculate the turnover period. This indicator shows how much time it takes to replenish the inventory. It is calculated as 365 (days in a year) divided by the inventory turnover ratio.

Based on this, it can be written as:

$$R_t = \frac{V_{\text{sales}}}{V_{\text{aver. bal.}}}, \quad (1)$$

$$P_t = \frac{T_{\text{per.}}}{R_t} = \frac{V_{\text{arer.bal}} \times T_{\text{per.}}}{V_{\text{sales}}}, \quad (2)$$

where V_{sales} is the volume of sales for the selected period; $V_{\text{arer.bal.}}$ is the average balance of commodity stocks for the selected period; $T_{\text{per.}}$ is the term of the selected settlement period.

This methodology works well for all product items that the company regularly trades. However, certain difficulties and significant inaccuracies can arise when dealing with non-regular items. These are products that are not consistently present in the company's inventory but appear in the product portfolio from time to time. These could be seasonal or periodic products.

For such product items, calculating the average inventory level is, at best, inaccurate. For products that are temporarily in the company's circulation, it can be entirely misleading. This is because the average inventory level is “smoothed” over the entire calculation period, even though the product may only be in circulation for a few days from time to time.

Fig. 1 illustrates the changes in inventory for periodic products and the product's movement due to sales.

As Fig. 1 illustrates, the product was in stock for the first 4 days, and the entire inventory was sold. Then there was a 22-day break in product delivery, and it reappeared in stock 4 days before the end of the period.

Clearly, with this demand for the product, the turnover ratio must be quite high (on average, the rate of sales predicts the sale of purchased goods in about 4-5 days, as shown in Fig. 1b). This means that the turnover ratio should be (calculated using a month – 30 accounting days) close to 6-7, and the turnover period should be 4-5 days.

However, if you use the classical calculation scheme (1) – (2), you would get a turnover ratio of Turnover Ratio (Kob)=3.71, and a turnover period (Tob)=8.09 days.

It is evident that this error occurs due to the incorrect calculation of the average inventory (average value from the initial and final balances) in the company's inventory.

If you were to calculate the average inventory considering the inventory for each day of the period, the turnover ratio would be 5.6, and the turnover period would be 3.23 days.

The results of these two calculations differ by more than 2.5 times.

It should be noted that the second calculation

yields more accurate results, but even in that case, the average inventory is “smoothed” over the entire accounting period, including the interval when the product is completely absent from stock.

It's evident that the standard calculation scheme is incorrect and requires further refinement.

Analysis and research of publications

A number of works by Ukrainian and foreign authors are devoted to the problem of developing an effective scheme for calculating the turnover period of commodity stocks and determining the turnover ratio [1–5].

There are several schemes for calculating the product turnover ratio and the turnover period. One of the most common methods is the calculation method based on the average value, which is used to determine the turnover ratio and turnover period [4]. This method calculates the average value of inventory and revenue for a period, such as a year, and then uses this value to determine the turnover ratio and the turnover period.

In addition, there are other calculation methods. For example, the method of days sales and the method of months of sales [6].

The method of days sales and the method of months of sales are methods of calculating the turnover period, that is, the time during which the stock of goods is sold. They are based on determining the average number of days (days sales method) or months (months of sales method) a company needs to turn over its inventory.

The days sales (months of sales) method uses the following calculation scheme:

$$\text{Days (months) of sales} = (\text{Average inventory volume} \times \text{Sales volume day (month)}) \quad (3)$$

Usually, the average inventory volume is calculated by adding the inventory at the beginning and end of the period and dividing the resulting value by 2.

The fewer days of sales are, the faster the company turns its inventory into sales, which indicates its efficiency.

It is visible that these indicators are integral, averaged over a certain period of time and are calculated with relative accuracy.

From the schemes above, including the classical one, it can be seen that the calculation of the average value of stocks for a certain period of time based on the ratio: “adding the volumes of stocks at the beginning and end of the period and dividing the obtained value by 2” does not introduce significant errors into the calculation of the turnover ratio and the turnover period only if the fluctuations of the balance in the

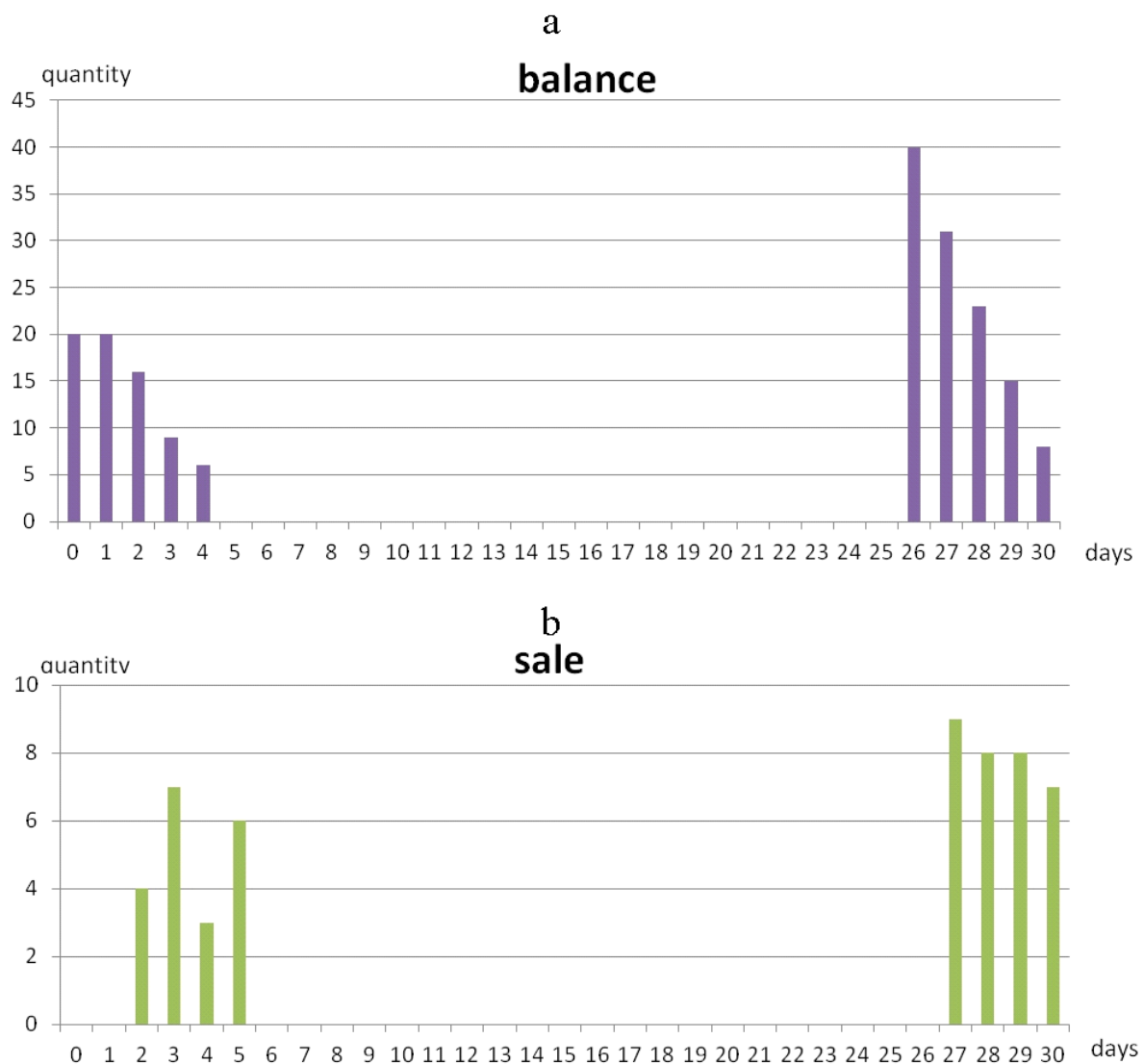


Fig. 1. Dynamics of goods movement in the warehouse: a) change of the goods balance in the warehouse; b) dynamics of product sales by day during the month.

warehouse during this period are insignificant and are not subject to sudden changes.

Otherwise, it is necessary to find the average value of the product balance in the warehouse, taking into account its change every month, and even better every day. That is, to calculate the average value, you should use the formula:

$$v_{\text{aver.bal.}} = \frac{\sum v_{\text{bal.i}}}{T_{\text{per.}}}, \quad (4)$$

where $v_{\text{aver.bal.}}$ is the estimated average balance, $v_{\text{bal.i}}$ is

the balance of goods in the warehouse for each day of the period, $T_{\text{per.}}$ is the number of days of the settlement period.

For a more accurate analysis, we also use calculations of the change in the indicator of the turnover period in time for certain periods and compare them with other indicators of financial reporting. Some authors recommend using not only days of sales, but also other indicators, such as days of inventory and days of debt, for a more complete assessment of the company's financial stability and efficiency.

Meanwhile, there are several approaches that

can be used to evaluate the turnover period of goods when the product is irregularly present in the inventory. One of these approaches is the weighted average method [7]. It involves initially calculating the turnover period for each period the product is available for sale and then averaging these values, taking into account the fraction of each period in the total period. As mentioned earlier, the formula for calculating the turnover period of the i -th period for the product (for each period) has a form similar to (2):

$$P_{ti} = \frac{v_{\text{arer.bal.}} \times T_{\text{per.}}}{v_{\text{salesi}}}, \quad (5)$$

After calculating the turnover period of the product for each period, you can use the following formula to calculate the weighted average turnover period of the product:

$$P_t = \sum (T_{\text{per.i}} \times \text{weight}_i). \quad (6)$$

Where: $T_{\text{per.i}}$ – is the turnover period of the i -th period of the product; weight_i – i is the fraction of the i -th period in the total period.

This approach to calculating the weighted average turnover period of a product allows for the consideration of different periods of product availability for sale and their significance in the total period, providing a more accurate result.

This method can be valuable for evaluating inventory management efficiency, identifying which products have high and low turnover, and optimizing inventory to improve liquidity and reduce costs.

It's important to understand that when using the weighted average method, you should also be careful and consider the product's characteristics, industry-specific factors, and any other variables that might affect the assessment of the fraction (weighting coefficient) of each defined turnover period. Typically, the weighting coefficient is determined manually by the operator performing the calculations.

Another approach is using a stock balance graph [8]. Based on the graph, you can determine how long a regular sales cycle takes and use this information to calculate the turnover period of the product. You can also apply other statistical analysis methods, such as data extrapolation and interpolation, to estimate the product's turnover period. However, operator adjustment of data is often required in these methods as well.

Several other approaches can also be used to calculate the turnover period of a product with irregular inventory presence.

One method involves averaging the periods of

product presence and absence on the inventory.

Another approach utilizes exponential smoothing for sales and inventory forecasting in the future [9,10].

The turnover period calculation scheme in both methods is based on calculating the weighted average period of product availability in inventory over the analyzed period.

As mentioned earlier, if the presence of a product in the company's inventory is of a seasonal or periodic nature, calculating the average inventory level will be, at best, incorrect and, at worst, can lead to an inaccurate assessment of the state of the product and, consequently, financial losses for the company.

The purpose of the article

The purpose of this work is to develop a simple and effective algorithm that can be used to automatically calculate the turnover period of goods in any electronic accounting system, regardless of whether the goods are regular, periodic, or permanently present in the warehouse. This algorithm should be universal and calculate with equal accuracy the turnover period both for regular goods that are constantly in turnover and for periodic goods that are temporarily absent from the company's warehouse.

Presenting the main material

The approach proposed by the authors for assessing the product turnover period can be referred to as the “event-based” method. It lies in temporal fixation of the “events” of the purchase and sale of goods in the interval during which the turnover period of the goods is calculated.

For simplification, let's consider the data of a trading company. For it, the life cycle of the product consists of the following stages: purchase of the product from the supplier, delivery of the product to the company's warehouse, pre-sale preparation and sale of the product to the buyer. The time from the purchase of goods from the supplier to its sale to buyers, taking into account the quantity of goods sold, will be considered as the turnover period of this item.

To explain the operation of the turnover calculation algorithm, let's return to the definition of the term “product turnover period”. In most of the works, the authors provide the following definition of this term: “Turnover is the time during which the goods, which have entered the warehouse, turn into money and return to circulation.”

All calculations for determining the turnover ratio or turnover period of the goods, in one way or another, are aimed precisely at this goal - to determine the time of return of “frozen” funds in the goods back into circulation. This allows you to manage the company's assets effectively.

That is, the present “event” of freezing funds in the product is the purchase of the product and its delivery to the warehouse of the enterprise. If the product is not sold, the funds invested in the purchase of the product will remain frozen until the end of the settlement period. In this case, the turnover ratio will be zero, and the turnover period will be infinite.

The return of funds back into circulation becomes possible thanks to the sale of goods. This is the second “event”, from the moment of which part of the money is returned to circulation. If all purchased goods are sold on the same day, the turnover ratio will be equal to the number of calendar days in the calculation period (for example, the number of days in a given month for monthly calculations or 7 days for weekly calculations), and the turnover period is 1 day.

In order to find out how money invested in purchased goods moves, let’s consider two simple examples.

For comparison, let’s model two nearly identical

scenarios for the same product depending on the speed of product turnover in sales (Fig. 2).

As it can be seen from the figures, both in the first (Fig. 2a) and in the second (Fig. 2b) cases, the product had been present in the company’s warehouse for 10 days. But in the first case, the sale of the goods took place on the last 9th and 10th days, and in the second case, the main sale of the goods was carried out on the second day of the reporting period (month), and the final small balance was sold on the 10th day.

It is obvious that the turnover period of the goods in these two cases will be significantly different for the first and second cases. In the first case, the turnover period will be close to 10 days, and in the second – it will be a little more than 2-3 days. This is due to the fact that in the first case (Fig. 2a), the funds were “frozen” in the product for 9 days. And only after that, the sale of the goods from the company’s warehouse began. In the second case (Fig. 2b), the sale of the goods began on the second day of the settlement period, and a significant part of the

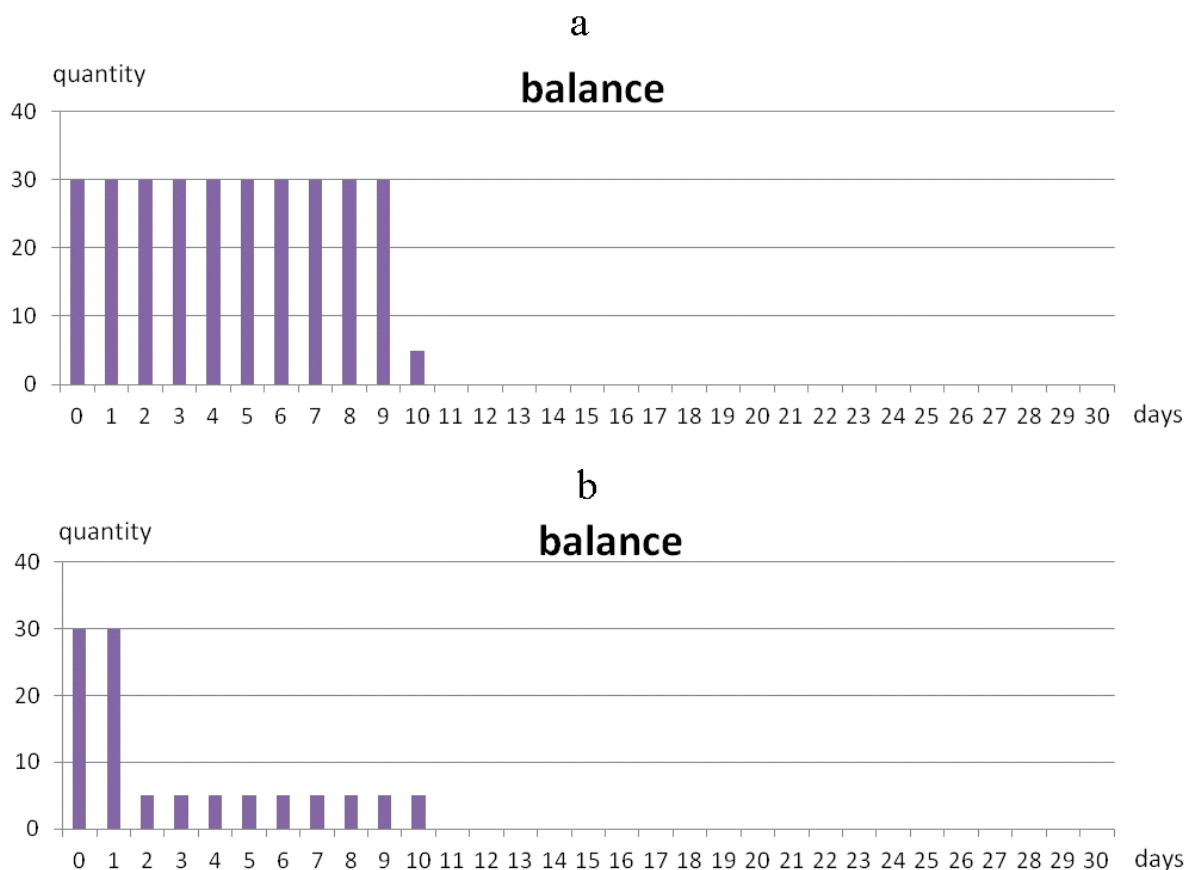


Fig. 2. An example of the movement of goods depending on the speed of sale: a) low speed of sale; b) high speed of sale.

funds “frozen” in the goods returned into circulation. In this case, the turnover period will be much shorter.

The classic scheme for calculating the turnover period of goods, as stated above, involves the following calculation:

$$R_t = \frac{V_{\text{sales}}}{V_{\text{aver. bal.}}}, \quad (7)$$

$$P_t = \frac{T_{\text{per.}}}{R_t} = \frac{V_{\text{aver. bal.}} \times T_{\text{per.}}}{V_{\text{sales}}}. \quad (8)$$

For simplicity, we will operate with the quantity of goods, and not with the amount of money, since both the sold goods and the balance in the warehouse should be taken into account using the cost price of the goods. If the cost price of the goods does not undergo significant fluctuations during the settlement period, then, in relation to the volume of funds returned at the time of sale (quantity of sold goods multiplied by cost price) and the volume of funds concentrated in the inventory (product of the quantity of goods in the warehouse multiplied by their price cost), in the expression for the turnover ratio, it will be simply reduced.

Then, as it can be seen from the expression for the turnover period, in the numerator, the number of units of the average commodity stock balance is multiplied by the entire calculation period (the period of “freezing” of funds in the average balance) and is divided by the number of goods sold during this period. But the funds had been “frozen” for only 9 days (in the first case, Fig. 2a), before the first sale of the goods. And then the insignificant balance was “frozen” only for one day.

The calculation algorithm is simple and, it seems, self-evident – take into account the “events” of buying and selling goods in time. There is only one non-trivial feature. Time intervals should be calculated from the moment of the “event” to the end of the reporting period. It is these events that correspond to the beginning of the “freezing” of monetary funds in goods and, accordingly, the second moment of the return of monetary funds into circulation. When purchasing goods, the period of “freezing” of funds should be calculated from the moment of purchase to the end of the reporting period. And when selling goods, also calculate the period of “return” of funds – from the moment of sale to the end of the reporting period. Only when selling it will be a negative transaction. Funds from the moment of sale are returned into circulation and work until the end of

the reporting period. As though the «freezing» on part of the funds is cancelled.

So, a not entirely simple, but effective, formula has been received for calculating the turnover period, for N “events” of purchase and M “events” of selling the product:

$$P_t = \frac{Q - ty_{\text{bal.}} \times T_{\text{per.}} + \sum_i^N Q - ty_{\text{purch}_i} \times (\text{Date}_{\text{end}} - \text{Date.purch}_i) - \sum_j^M Q - ty_{\text{purch}_j} \times (\text{Date}_{\text{end}} - \text{Date.sale}_j)}{\sum_j^N Q - ty_{\text{goode}_j}}, \quad (9)$$

where $Q - ty_{\text{bal.}}$ is the quantity of goods in the warehouse balance at the beginning of the period; $T_{\text{per.}}$ is the number of days of the settlement period; $Q - ty_{\text{purch}_i}$ is the quantity of goods of the purchase I; Date.purch_i is the date of the purchase I; $Q - ty_{\text{goode}_j}$ is the quantity of product of the sale j; Date.sale_j is the date of the sale j; Date_{end} is the end date of the period

In the numerator, the expression sums the initial balance of the product in the warehouse and the quantity of the purchased product, multiplied, respectively, by the periods of “freezing” of funds for each “event” of the purchase. The “plus” sign means the freezing of funds in the product. From this figure the sold goods quantity is subtracted, multiplied by the period of “return” of funds into circulation, applied also for each “event” of sale. In this case, the “minus” sign characterizes the return of part of the money into circulation. And this expression is divided, as in the classical scheme, by the total number of goods sold during the reporting period.

For the cases we selected (Fig. 2), this calculation algorithm gives:

For the case a)

$$P_t = \frac{30 \times 30 \text{days} - 25 \times 21 \text{days} - 5 \times 20 \text{days}}{30} = 9.17 \text{days}. \quad (10)$$

For the case b)

$$P_t = \frac{30 \times 30 \text{days} - 25 \times 29 \text{days} - 5 \times 20 \text{days}}{30} = 2.5 \text{days}. \quad (11)$$

It can be seen from expressions (10) and (11) that the proposed “event” algorithm for calculating the turnover period is correct and correlates with the estimates of the turnover period of the product depending on the speed of sale, which were given above.

As is was mentioned earlier, this algorithm does not depend on the selection of the calculation period. It can be used both for a regular product with a

permanent balance in stock, and for a periodic product that is out of stock for some time. It is tied to the events of purchase and sale of goods and is not limited by the term of the settlement period. The algorithm automatically excludes periods when the product is out of stock. Since all funds are returned into circulation after the last sale, there are no more components that characterise the sale of goods. A component with a “freezing” period occurs only at the time of the next purchase of the product.

It is easy to make sure that for the given “model” example, when the product disappears from the warehouse and appears again during the next purchase, this calculation is also more correct than the previously proposed algorithms. This algorithm is quite easily integrated into any accounting system of the enterprise, since it operates only with the time of “events”, the amount of purchase and sale of goods, the price cost of goods, which are automatically registered in the system and, as a rule, are related to expenditure and income documents. This allows to automatically receive the calculated data on the turnover of a large number of product items quickly and without much effort with one keystroke. They do not require the intervention of the operator in the calculation process to specify the features of the product or the calculation period. When we get the value of the turnover period for each product item by dividing the reporting period by the turnover period, there are no difficulties in determining the turnover ratio.

The mechanism for calculating the turnover period for a large number of product items was tested for several years (Firma Irita LLP – a network of company divisions in Kyiv, Dnipro, Lviv, Poltava, within the period from 2001 to 2019) and implemented in the accounting system of this wholesale organization, which has 19 product groups and more than 6,000 product names in its product portfolio. It became the basis of ABC analysis of the product portfolio of this enterprise and was one of the key indicators of work efficiency when deploying the Internet business system.

Conclusions

The proposed simplified algorithm for automatic calculation of the turnover period can be applied to both regular and periodic goods that are not in the company’s warehouse for a certain time during the settlement period.

The algorithm is universal and does not require additional conditions for calculating turnover of such periodic goods.

The proposed algorithm is based on recording the time “events” of the purchase and sale of goods, which determine the “freezing” of funds in the goods

and their return to circulation.

This algorithm has no limitations regarding the term of the settlement period and can be applied to analyze turnover both for small (local) time intervals and for long settlement periods.

The algorithm is easily adapted for automatic calculation of turnover in any enterprise accounting system and allows you to obtain data for a large number of product items quickly.

Automation of turnover calculation on the basis of the proposed “event” algorithm can significantly increase the efficiency of Internet business and considerably improve the method of ABC analysis of the company’s product portfolio.

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МЕТОДИКА ОЦІНЮВАННЯ ПЕРІОДУ ОБОРОТУ ТОВАРІВ В ІНТЕРНЕТ-БІЗНЕСІ

Сахно Вячеслав, Говоруха Володимир, Кучкова Ольга, Білоусов Ярослав, Гура Денис, Живцов Валентин

У статті розглянуто питання методики розрахунку коефіцієнта і терміну оборотності товарних залишків підприємства в умовах нерегулярних товарних запасів на складі. Вказано на важливість показника, що характеризує оборотність обігових коштів, пов'язаних з товарними залишками. Запропоновано науково-методичний підхід до оцінювання періоду обороту товарів, для оптимізації та підвищення ефективності ведення інтернет-бізнесу. Визначено проблеми, які виникають при використанні класичної схеми розрахунку коефіцієнта оборотності товарів і терміну оборотності товарів, та показано складнощі автоматичного розрахунку цих показників при використанні інших схем розрахунку цих параметрів, запропонованих українськими та закордонними авторами. Запропоновано новий алгоритм розрахунку терміну оборотності товару на основі «подієвого» підходу. Ця методика використовує фіксацію часових «подій» закупівлі та продажу товару, які є моментами заморожування грошових коштів у товарі та їх подальшого повернення в обіг. На модельних прикладах показано можливість коректного розрахунку терміну оборотності товару для нерегулярного товару, який може бути тимчасово відсутній на складі підприємства, а також продемонстровано можливість здійснення автоматичного розрахунку цих показників для значної кількості товарних позицій. Запропонована авторами методика розрахунку є універсальною і не потребує використання додаткових умов при розрахунку показників оборотності, як для регулярного (постійно присутнього в обороті), так і періодичного, чи сезонного (нерегулярно присутнього на складі підприємства) товару. Методика не має обмежень для терміну розрахункового періоду і однаково ефективно може бути застосована, як для малих розрахункових періодів, так і для значних (інтегральних) термінів розрахунку. Автоматизація розрахунку оборотності товарів на основі запропонованого «подієвого» алгоритму дозволяє значною мірою підвищити ефективність ведення інтернет-бізнесу та вдосконалити методику ABC-аналізу товарного портфеля підприємства. Запропонована методика розрахунку терміну оборотності товарів є оригінальною. Авторами не знайдено аналогів використання подібної методики розрахунку в інших публікаціях, присвячених тематиці оборотності обігових коштів, пов'язаних з товарними залишками підприємства.

Ключові слова: інтернет-бізнес, коефіцієнт оборотності товарів, термін оборотності товарів, оптимізація товарних запасів, ефективність бізнесу.

METHODOLOGY FOR ASSESSING THE TURNOVER PERIOD OF GOODS IN INTERNET BUSINESS

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The article discusses the methodology for calculating the turnover coefficient and period of turnover of inventory for a company with irregular stock on hand. It emphasizes the importance of the indicator characterizing the turnover of working capital associated with inventory. A scientific and methodological approach is proposed for evaluating the product turnover period to optimize and enhance the efficiency of managing an e-commerce business. The article identifies the problems that arise when using the classical method for calculating the turnover coefficient and turnover period of goods and demonstrates the challenges of automatically calculating these indicators using alternative calculation schemes proposed by Ukrainian and foreign authors. A new algorithm for calculating the turnover period of goods based on an “event-based” approach is proposed. This methodology involves capturing the timing of “events” such as the purchase and sale of goods, which represent moments when funds are tied up in inventory and then returned to circulation. Model examples illustrate the accurate calculation of the turnover period for irregular goods that may temporarily be absent from a company’s inventory. The ability to automatically calculate these indicators for a significant number of product items is also demonstrated. The methodology proposed by the authors is universal and does not require additional conditions when calculating turnover indicators, whether for regularly stocked items, periodically stocked items, or seasonally stocked items. The methodology is not limited by the calculation period and can be equally effective for short and long calculation periods. Automating the calculation of inventory turnover based on the proposed “event-based” algorithm significantly enhances the efficiency of managing e-commerce businesses and improves the methodology of ABC analysis of a company’s product portfolio. The authors’ methodology for calculating the turnover period of goods is original, with no similar methods found in other publications related to the turnover of working capital associated with a company’s inventory.

Keywords: Internet business, turnover ratio of goods, term of turnover of goods, optimisation of commodity stocks, business efficiency.

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