Analysis of Factors Influencing the Turnover Efficiency of Quick Assets in Agricultural Companies

ZOU Ling-li, JIA Xian-wei*

College of Economics and Management, Sichuan Agricultural University, Chengdu 611130, China

Abstract We select 34 representative agricultural listed companies as the study object, to analyze the characteristics of quick assets in agricultural companies. The ratio between quick assets and total assets roughly displays normal distribution, with the peak value up to 40%; the distribution figure shape of the ratio between quick assets and liquid asset displays normal distribution, with the peak value up to 63%. Taking the case of typical agricultural company, Yuan Longping High-Tech Agriculture Co., Ltd., we analyze the factors influencing turnover of quick assets, and the main factors influencing the turnover of quick assets in agricultural companies are monetary funds and receivables. We establish the multiple linear regression model, and draw the conclusion that the turnover efficiency of quick assets is significantly affected by the ratio between cash assets and income, turnover rate of receivables, and quickness ratio.

Key words Agricultural companies, Quick assets, Turnover efficiency, Income

With the rapid development of the market economy, the rational flow of the corporate assets has accelerated centralization of capital and the expansion of asset size. In the large-scale expansion of the global capital, agricultural companies are facing fierce competition. Due to the special nature of the agricultural enterprises (especially the seasonality of agricultural and sideline products), the agricultural companies must pay attention to the management of assets with the strongest circulation in the enterprise.

The quick assets are the liquid assets which can turn into cash in a relatively short period of time, including monetary funds, financial assets held for trading and various receivables, prepayments. As we all know, quickness ratio is an important indicator for measuring the short-term solvency of enterprises [1]. On the one hand, holding a moderate amount of quick assets can avoid bankruptcy and closedown of enterprises due to insolvency; on the other hand, strengthening the reasonable turnover of quick assets can make assets increase value in turnover, improve the use efficiency and profitability of assets, ultimately achieving the centralization of capital and the expansion of asset size. Therefore, strengthening the management of quick assets in agricultural companies to improve the turnover efficiency of quick assets becomes particularly important.

1 The characteristics of the quick assets in agricultural companies

Currently, 58 of China's agricultural companies have been listed. We select 34 listed companies with more agricultural properties and take their financial reports publicly disclosed in 2010 as the sample data. The main business that the 34 listed companies are mainly engaged in is focused on agricultural and sideline products and other related products. In addition, the quick assets defined in this study are the part after the liquid assets subtract stock expenses, non-liquid assets due within one year and other liquid assets.

Affected by natural conditions, the agricultural products are seasonal, and if agricultural companies want to timely obtain the raw materials, it is necessary to have sufficient current capital. Therefore, agricultural companies have a huge demand for the liquid assets, especially the quick assets having strong liquidity. Based on the relevant financial data in 2010, we calculate the ratio between quick assets and liquid assets, and the ratio between quick assets and total assets in various agricultural companies, which can be seen in Table 1.

According to Table 1, we conduct statistical analysis of the ratio between quick assets and total assets in the 34 agricultural companies. Fig. 1 reflects the distribution of the ratio between quick assets and total assets.

It can be seen from Fig. 1 that the ratio between quick assets and total assets roughly takes on normal distribution, with the peak value close to 40%.

Assuming that $\overline{X}$ is the mean of observed sample and s is the standard deviation of observed sample. If the value of n is large enough, namely $n \geqslant 30$, then the confidence interval of β% with mean of μ is $[\overline{X} - \frac{c \times s}{\sqrt{n}}, \overline{X} + \frac{c \times s}{\sqrt{n}}]$.

In the case of $P(-c \leqslant Z \leqslant c) = \beta/100$, the value of c is as follows: when $\beta = 90\%$, $c = 1.645$; when $\beta = 95\%$, $c = 1.960$; when $\beta = 98\%$, $c = 2.326$; when $\beta = 99\%$, $c = 2.576$.

Through calculation, we can derive that the mean of 34 samples is 36.17%, and the standard deviation of the samples is 0.17, thus with 95% confidence, we believe that the ratio between quick assets and total assets is in the interval (30.46%, 41.88%).

The statistics show that the ratio between liquid assets and total assets in the vast majority of agricultural companies is in

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* Corresponding author. E-mail: 383394698@qq.com

the interval (30.46%, 41.88%).

According to the data in Table 1, we conduct statistical analysis of the ratio between quick assets and liquid assets in the 34 agricultural companies. Fig. 2 reflects the distribution of the ratio between quick assets and liquid assets.

Table 1 The ratio between quick assets and liquid assets and the ratio between quick assets and total assets

Enterprise	Quick assets yuan	Liquid assets yuan	Total assets yuan	Quick assets/Liquid assets//%	Quick assets/Total assets//%
Gansu Yasheng Industrial(Group) Co., Ltd.	967 307 000.00	1 287 500 000.00	4 286 560 000.00	75.13	22.57
Hunan Jinjian Cereals Industry Co., Ltd.	279 009 600.00	680 754 000.00	1 480 340 000.00	40.99	18.85
Shanghai Kaichuang Marine International Co., Ltd.	211 500 000.00	370 383 000.00	1 233 880 000.00	57.10	17.14
China Animal Husbandry Industry Co., Ltd.	1 214 095 000.00	1 673 920 000.00	2 904 660 000.00	72.53	41.80
Xinjiang Guannong Fruit & Antler Co., Ltd.	433 346 592.00	1 114 810 000.00	2 296 150 000.00	38.87	18.87
Dahu Aquaculture Co., Ltd.	258 336 000.00	530 859 000.00	1 199 680 000.00	48.66	21.53
Zhongken Agricultural Resource Development Co., Ltd.	475 493 080.00	479 181 000.00	575 710 000.00	99.23	82.59
Gansu Dunhuang Seed Co., Ltd.	1 625 931 948.00	2 395 020 000.00	3 343 300 000.00	67.89	48.63
Xinjiang Talimu Agriculture Development Co., Ltd.	1 437 520 000.00	2 491 010 000.00	4 059 110 000.00	57.71	35.41
Tongwei Group Co., Ltd.	765 429 000.00	1 609 020 000.00	3 682 830 000.00	47.57	20.78
Heilongjiang Agriculture Co., Ltd.	5 150 677 830.00	11 783 500 000.00	17 904 700 000.00	43.71	28.77
Shanghai Dajiang Stock Co., Ltd.	193 144 000.00	398 833 000.00	662 750 000.00	48.43	29.14
Hunan New Wellful Co., Ltd.	236 564 880.00	411 788 000.00	678 619 000.00	57.45	34.86
Fortune Ng Fung Food (Hebei) Co., Ltd.	108 881 240.00	289 236 000.00	637 827 000.00	37.64	17.07
Shenzhen Agricultural Products Co., Ltd.	3 985 115 800.00	4 083 730 000.00	9 112 760 000.00	97.59	43.73
Fujian Zhongfu Industries Co., Ltd.	749 724 800.00	1 432 480 000.00	1 926 900 000.00	52.34	38.91
Hefei Fengle Seed Co., Ltd.	792 440 000.00	1 337 880 000.00	1 882 420 000.00	59.23	42.10
Hunan Zhenghong Science and Technology Develop Co., Ltd.	251 235 000.00	467 345 000.00	931 726 000.00	53.76	26.96
Haikou Agriculture & Industry & Trade(LUONIUSHAN) Co., Ltd.	813 478 900.00	1 191 820 000.00	2 911 470 000.00	68.26	27.94
CNFC Overseas Fishery Co., Ltd.	326 205 110.00	492 558 000.00	785 744 000.00	66.23	41.52
Beijing Shunxin Agriculture Co., Ltd.	2 471 070 000.00	4 959 930 000.00	9 929 370 000.00	49.82	24.89
Yuan Longping High-tech Agriculture Co., Ltd.	941 484 000.00	1 702 220 000.00	2 441 950 000.00	55.31	38.55
Shan Dong Denghai Seeds Co., Ltd.	1 279 813 000.00	1 533 210 000.00	1 952 620 000.00	83.47	65.54
Dalian Zhangzidao Fishery Group Co., Ltd.	705 747 650.00	2 423 870 000.00	3 304 410 000.00	29.12	21.36
Ningbo Tech-bank Co., Ltd.	200 080 582.00	380 090 000.00	907 733 000.00	52.64	22.04
Jiangxi Zhengbang Technology Co., Ltd.	1 013 572 240.00	1 733 540 000.00	2 824 210 000.00	58.47	35.89
Shanxiahu Pearl Group Co., Ltd.	177 815 000.00	707 956 000.00	828 290 000.00	25.12	21.47
Shandong Minhe Animal Husbandry Co., Ltd.	272 592 247.00	431 781 000.00	1 108 070 000.00	63.13	24.60
Fujian Sunner Development Co., Ltd.	722 904 000.00	1 068 600 000.00	3 204 290 000.00	67.65	22.56
Beijing Dabeinong Technology Group Co., Ltd.	2 274 347 751.00	3 092 410 000.00	4 044 780 000.00	73.55	56.23
Shandong Yisheng Livestock & Poultry Breeding Co., Ltd.	594 453 500.00	636 528 000.00	1 222 240 000.00	93.39	48.64
Winall Hi-tech Seed Co., Ltd.	438 835 000.00	560 675 000.00	619 033 000.00	78.27	70.89
Grand Agriseeds Technology, Inc.	221 851 467.00	370 447 000.00	448 426 000.00	59.89	49.47
Starway Bio-technology Co., Ltd.	582 199 400.00	601 037 000.00	851 317 000.00	96.87	68.39

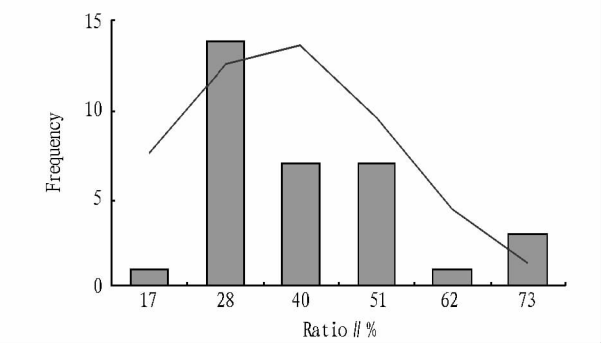

Fig.1 The histogram and normal distribution of the ratio between quick assets and total assets

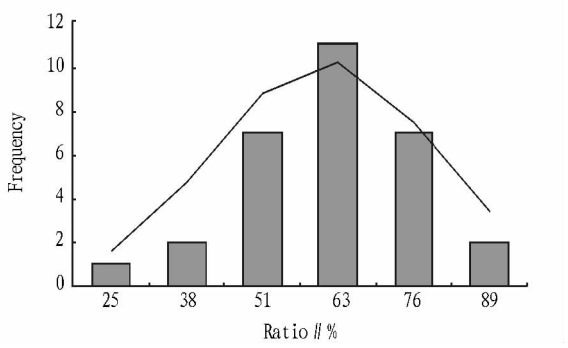

Fig.2 The histogram and normal distribution of the ratio between quick assets and liquid assets

According to Fig.2, the distribution figure shape of the ratio between quick assets and liquid assets shows normal distribution, with peak value close to 63%. According to the method of calculating the ratio between quick assets and total assets, we calculate the mean of 34 samples at 61.09%, and the standard deviation of the sample at 0.19, thus there is 95% confidence that the mean of the ratio between quick assets and liquid assets is in the range of 55.70% to 67.48%.

The statistics show that in the vast majority of agricultural enterprises, the ratio between quick assets and total assets is in the range of 30.46% to 41.88%, and the ratio between quick assets and liquid assets is in the range of 55.70% to 67.48%. The large percentage of quick assets indicates the importance of quick assets to agricultural companies, which is different from other non-agricultural enterprises. Therefore, agricultural companies must strengthen the management of quick assets, accelerate the turnover of quick assets, and improve the utilization efficiency of enterprise assets.

2 Analysis of factors influencing the turnover of quick assets

Taking the financial statements of Yuan Longping High-Tech Agriculture Co., Ltd. in the period 2009–2010 as the data sources, we analyze the factors influencing the turnover of quick assets. The company's main business is the cultivation, breeding, promoting and marketing of seeds and seedling of high-tech crops (mainly the hybrid rice and vegetables).

Quick assets consist of monetary funds, financial assets held for trading, receivables, notes receivable, other receivables and prepayments. According to the definition of turnover rate of liquid assets, we can derive that the turnover rate of quick assets is the ratio between quick assets and income, which can be signified by turnover days of quick assets, turnover frequency of quick assets or the ratio between quick assets and income. Under the conditions of given sale income, the driving factors for turnover of quick assets are the constituting assets.

According to the financial statements of Yuan Longping High-Tech Agriculture Co., Ltd. in the period 2009–2010, Table 2 displays the variation in the company's turnover rate of quick assets, and variation in the turnover rate of various assets.

It can be seen from Table 2 that in 2010, the turnover days of quick assets in Yuan Longping High-tech Agriculture Co., Ltd. were 268.39 days, a decrease of 47.24 days compared to 2009. The impact of various projects on the turnover days of quick assets can seen from Table 2; monetary funds have the most prominent impact, with turnover days decreased by 53.79 days.

Table 2 Turnover rate of various quick assets in Yuan Longping High-tech Agriculture Co., Ltd.

Assets	Sum		The ratio between assets and income			Asset turnover days		
	2010	2009	2010	2009	Change	2010	2009	Change
Monetary funds	549 705 000	608 267 000	0.429	0.577	−0.147	156.70	210.49	−53.79
Financial assets held for trading	14 335 100	9 572 040	0.011	0.009	0.002	4.09	3.31	0.77
Notes receivable	533 595	200 000	0.000	0.000	0.000	0.15	0.07	0.08
Receivables	158 068 000	106 157 000	0.123	0.101	0.023	45.06	36.74	8.32
Prepayments	130 020 000	129 308 000	0.102	0.123	−0.021	37.06	44.75	−7.68
Interest receivable	252 000	294 250	0.000	0.000	−0.000	0.07	0.10	−0.03
Dividends receivable	1 783 000		0.001	–	0.001	0.51	0.00	0.51
Other receivables	86 790 900	58 272 000	0.068	0.055	0.013	24.74	20.17	4.58
Total assets	941 487 595	3 038 032 90	0.74	0.86	−0.13	268.39	315.63	−47.24

According to analysis of the ratio between assets and income, every 1 yuan of income occupied 0.74 yuan of quick assets in Yuan Longping High-tech Agriculture Co., Ltd. in 2010, 0.13 yuan less than in 2009. It can be seen from Table 2 that the quick assets occupied by every 1 yuan of income was decreased in 2010, mainly due to the reduction of monetary funds and prepayments (monetary funds decreasing by 0.147 yuan, and prepayments decreasing by 0.021 yuan).

From the factor influencing turnover of quick assets in Yuan Longping High-tech Agriculture Co., Ltd., we can find

that the main factors influencing the turnover of quick assets in agricultural companies are monetary funds and receivables.

3 Model analysis of factors influencing turnover of quick assets

We believe that the main factors influencing the turnover of quick assets include cash assets and income ratio, turnover rate of receivables and quickness ratio. We take the turnover rate of quick assets in agricultural listed companies as the dependent variable, and take cash assets and income ratio, turnover rate of receivables and quickness ratio as independent variables. Using the financial data on 34 agricultural listed companies in 2010, we establish the multiple linear regression model.

$$Y = C + \alpha x + \beta y + \chi z$$

where Y is the turnover rate of quick assets; x is the ratio between cash assets and income; y is the turnover rate of receivables; z is the quickness ratio.

According to the financial statement in 2010 on 34 agricultural listed companies publicly disclosed, we calculate the turnover rate of quick assets, the ratio between cash assets and income, turnover rate of receivables and quickness ratio, as is shown in Table 3.

Table 3 Main factors influencing the agricultural listed companies' turnover of quick assets

Enterprise	Turnover rate of quick assets	The ratio between cash assets and income	Turnover rate of receivables	Quickness ratio
Gansu Yasheng Industrial(Group) Co., Ltd.	0.685 8	0.152 4	0.190 7	0.642 7
Hunan Jinjian Cereals Industry Co., Ltd.	0.222 8	0.089 8	0.046 8	0.351 0
Shanghai Kaichuang Marine International Co., Ltd.	0.363 9	0.135 2	0.000 9	0.545 9
China Animal Husbandry Industry Co., Ltd.	0.456 2	0.341 4	0.075 0	1.071 2
Xinjiang Guannong Fruit & Antler Co., Ltd.	0.527 9	0.353 7	0.043 5	0.419 0
Dahu Aquaculture Co., Ltd.	0.576 9	0.352 7	0.069 6	0.481 7
Zhongken Agricultural Resource Development Co., Ltd.	0.905 1	0.887 7	0.001 7	7.249 7
Gansu Dunhuang Seed Co., Ltd.	1.023 0	0.665 5	0.181 2	0.726 6
Xinjiang Talimu Agriculture Development Co., Ltd.	0.744 0	0.430 5	0.119 3	0.631 2
Tongwei Group Co., Ltd.	0.079 6	0.027 5	0.039 0	0.394 6
Heilongjiang Agriculture Co., Ltd.	0.558 2	0.153 6	0.098 2	0.461 6
Shanghai Dajiang Stock Co., Ltd.	0.272 2	0.179 5	0.053 7	0.842 4
Hunan New Wellful Co., Ltd.	0.269 7	0.138 6	0.044 4	1.207 7
Fortune Ng Fung Food (Hebei) Co., Ltd.	0.215 4	0.066 9	0.109 5	0.662 2
Shenzhen Agricultural Products Co., Ltd.	2.907 1	2.313 1	0.028 4	0.862 3
Fujian Zhongfu Industries Co., Ltd.	1.502 5	1.143 1	0.199 1	1.574 6
Starway Bio-technology Co., Ltd.	0.526 7	0.406 9	0.066 1	1.063 3
Hunan Zhenghong Science and Technology Develop Co., Ltd.	0.147 3	0.114 7	0.008 0	0.536 0
Haikou Agriculture & Industry & Trade(LUONIUSHAN) Co., Ltd.	0.921 9	0.515 6	0.022 0	1.437 1
CNFC Overseas Fishery Co., Ltd.	0.895 0	0.817 3	0.039 3	3.913 5
Beijing Shunxin Agriculture Co., Ltd.	0.394 2	0.192 3	0.024 8	0.395 2
Yuan Longping High-tech Agriculture Co., Ltd.	0.735 3	0.440 5	0.123 5	0.8032
ShanDongDenghai Seeds Co., Ltd.	1.364 7	1.289 5	0.005 9	2.022 4
Dalian Zhangzidao Fishery Group Co., Ltd.	0.312 4	0.211 2	0.054 0	0.601 9
Ningbo Tech-bank Co., Ltd.	0.180 8	0.098 1	0.033 8	0.500 9
Jiangxi Zhengbang Technology Co., Ltd.	0.136 5	0.053 2	0.014 5	0.782 4
Shanxiahu Pearl Group Co., Ltd.	0.608 4	0.121 4	0.331 3	0.451 5
Shandong Minhe Animal Husbandry Co., Ltd.	0.271 7	0.153 4	0.032 2	0.581 3
Fujian Sunner Development Co., Ltd.	0.349 3	0.251 0	0.042 9	0.687 2
Beijing Dabeinong Technology Group Co., Ltd.	0.433 3	0.398 8	0.010 7	2.829 8
Shandong Yisheng Livestock & Poultry Breeding Co., Ltd.	1.295 1	1.072 8	0.030 5	2.380 8
Winall Hi-tech Seed Co., Ltd.	2.434 6	2.314 4	0.078 1	7.930 2
Grand Agriseeds Technology,Inc.	0.561 6	0.326 6	0.093 6	2.466 1
Starway Bio-technology Co., Ltd.	3.466 9	3.367 8	0.040 6	12.8678

We use SPSS17.0 software for statistical analysis, and the results are as follows: $R=0.993$; $R^2=0.986$; adjusted $R^2=0.984$; standard estimation error is 0.097 384 8.

According to the statistical analysis results, the coefficient of each variable derived is as follows: $c=0.107$, $\alpha=1.155$, $\beta=1.204$, $\chi=-0.045$, then the regression equation of turnover rate of quick assets, the ratio between cash assets and income, turnover rate of receivables and quickness ratio is as follows:

$$Y = 0.107 + 1.155x + 1.204y - 0.045z$$

Standard error(0.028)(0.037)(0.247)(0.011)

t value(3.784)(31.062)(4.872)(−4.231)

The statistical results show that the correlation coefficient $R=0.993$, indicating that the turnover rate of quick assets is highly correlated with the ratio between cash assets and income, turnover rate of receivables and quickness ratio.

The multiple correlation coefficient $R^2=0.986$, indicating that 98.6% of variation in the turnover rate of quick assets can

be explained by regression, that is, the overall fitting effect of this model is good. From the *t* value of independent variables *x*, *y*, *z*, it is greater than 5%, and sig value of each variable is less than 0.01. Therefore, the ratio between cash assets and income, turnover rate of receivables and quickness ratio have significant impact on the turnover rate of quick assets in agricultural listed companies.

4 Conclusions and recommendations

By analyzing the factors influencing the turnover of quick assets in agricultural listed companies, this article establishes multiple linear regression model, to draw the conclusion that the turnover of quick assets in agricultural companies is significantly influenced by the ratio between cash assets and income, turnover rate of receivables, and quickness ratio. Under the condition of holding other factors constant, when the ratio between cash assets and income increases by 1 percentage point, the turnover rate of quick assets will increase by 1.155 percentage points; similarly, when the turnover rate of receivables increases by 1 percentage point, the turnover rate of quick assets will increase by 1.204 percentage points; when the quickness ratio increases by 1 percentage point, the turnover rate of quick assets will decrease by 0.045 percentage points.

Cash assets and receivables are the sub-items of quick assets, whose turnover rate will inevitably affect the turnover rate of quick assets, so the ratio between cash assets and income, and turnover rate of receivables can be regarded as the "income items" of quick assets. The quickness ratio, as an important indicator of the short-term solvency of enterprise, guides the enterprise to hold a certain amount of quick assets in order to repay short-term debt, which can be considered as the "expenditure item" of quick assets, so the quickness ratio is inversely correlated with the turnover of quick assets in the enterprise. Among the three influencing factors, the ratio between cash assets and income, turnover rate of receivables, have a more prominent impact on the turnover efficiency of quick assets.

Therefore, in order to accelerate the turnover of quick assets in the enterprise, and integrate the enterprise's asset resources, the enterprise must strengthen the management of monetary funds, financial assets held for trading, receivables, current liabilities and other items, to accelerate their velocity of circulation.

Based on this, we put forward the following recommendations:

(i) The agricultural companies should pay attention to improving the internal financial management system of enterprise, and in particular, strengthen the management of monetary funds, financial assets held for trading, receivables, and current liabilities.

(ii) It is necessary to rationally choose the policy for raising liquid assets, and give priority to the use of current liabilities for raising liquid assets; the liquid assets must match the production scale of enterprises.

(iii) Agricultural companies can learn from the bank's management of funds, and introduce the internal banking system, to divide all business units into cost centers, profit centers, and investment centers, according to the business units' type and responsibility scope. Each center performs its own functions, and carries regular assessment. The assessment results are linked to the interests of employees, to enhance enterprise's awareness of managing liquid assets, improve the turnover efficiency and use efficiency of assets, and enhance the market competitiveness of enterprises.

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