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ANALYSIS OF CORPORATE LIQUIDITY AND SOLVENCY BASED ON ECONOMIC AND MATHEMATICAL MODEL APPLICATIONS

Abstract: *This article discusses aspects of increasing the liquidity and solvency of the company based on the use of economic and mathematical models. Some recommendations are given to increase the coefficient of use of funds, increase the solvency of the company.*

Keywords: *liquidity, solvency, coefficient of use of funds, ratio, financial report.*

Huawei Investment Holdings Limited (hereinafter referred to as Huawei), as the world's largest communications equipment supplier, has entered a new stage of development. Based on the financial report data of Huawei in the past five years (2015-2019), understand the basic organizational structure, liquidity (company capital use efficiency), using the DuPont analysis to calculate the current ratio, quick ratio, cash ratio, debt ratio, equity ratio analysis of its debt solvency (including short-term debt solvency and long-term debt solvency).

Huawei is a private company founded in 1987, and it is the only one to make the Global Top 500 list, but it has no public company. Huawei is currently the world's largest supplier of communications equipment, with 188,000 employees, and is operating in more than 170 countries and regions, serving 3 billion people.

Huawei's core competitiveness lies in its proprietary and unique technology:

– 5G communication technology;

– Kirin chip, opens up a new era of mobile phone artificial intelligence chips;

– Hongmeng system is a multi-terminal distributed operating system completely independently developed by Huawei.

The registered capital of Huawei is 40,34,113,182 million yuan (RMB), and the actual paid-up capital is 39,908.132 million yuan. Huawei has a very special shareholding structure:

– Huawei Technology Co., Ltd. is 100% controlled by Huawei Investment Holding Co., Ltd.;

– Huawei Investment Holding Co., Ltd. consists of two shareholders: Ren Zhengfei holds 1.01% of the shares, and the Trade Union Committee of Huawei Investment Holding Co., Ltd. holds 98.99% of the shares.

Huawei employees' shareholding is achieved through this «alliance» (virtual restricted shares). Our analysis of the organization's short-term assets and short-term liabilities focuses on its liquidity risks, specifically referring to the risk of unrepaid due debt due to poor financing, poor cash flow, stagnation, etc.

By the end of 2019, Huawei's total cash flow from operating activities was 91.384 billion yuan, up 22.5% from 74.659 billion yuan at the end of 2018. Cash flow from operating activities has increased this year, indicating that Huawei has maintained its working capital. To achieve a healthy cash flow and a stable capital structure. But the total cash and short-term loans were 371.04 million yuan, up 39.6% from 265.857 million yuan at the end of 2018. It can be seen that Huawei saw a significant increase in both long-term and short-term borrowings in 2019, year-over-year, which is a worthy of warning of the financial data signal. The Huawei's management of cash capital, assets and liabilities is not very perfect.

It is recommended to improve the company's liquidity asset structure, using the capital structure and short-term liquidity planning and budget forecast system, to evaluate and predict the company's long-term capital needs and short-term capital gap, to ensure the financial needs of the company's business development, including maintaining a good capital structure and financial flexibility.

At the same time, when using the asset-liability ratio to make loan decisions, we should fully estimate the expected profit and the possible risks, weigh the profit and loss between the two, and implement effective capital planning and centralized management.

Short-term solvency: the ability to repay daily maturing debts. The flow ratio is relatively stable at around 1.5. The Huawei's average current ratio over the past five years was 1.49, indicating that its short-term debt solvency is controllable, but growth risks deserve concern; the quick ratio reflects the company's liquidity and speed. When the fast ratio is 1:1, the quick ratio is safer. A value below 1 indicates low solvency. The lowest cut-off value was 0.5. The fast-moving ratio of the Huawei has already stabilized. The main reason for the analysis is that the added value of the debt is falling. The added value of the inventory is also falling. But watch increased financial risk; companies with high cash ratios have strong ability to repay debts at all times. From 2015 to 2017, the company's cash service capacity increased annually. However, a significant decline occurred in 2017 – 2018. The company has invested a lot of money in the research and development platform and business field development.

Long-term solvency: debt solvency and debt repayment guarantee ability are important indicators of financial security and stability. Starting from the asset-to-asset ratio and equity ratio, this paper analyzes the long-term debt solvency of Huawei, with an appropriate debt-to-asset ratio of 40% -60% and a 70% early warning line. Huawei has 65% of the shares outstanding, although the company controls capital turnover. However, the use of external funds is relatively high. The normal value of property ratio is 1, and the average value of Huawei property ratio is 2, with poor capital turnover. According to actual estimates, high research and development costs create a funding shortfall.

Here are some financial tips:

1 Improve the utilization rate of funds: implement centralized management of unified funds, unified procurement and unified scheduling of funds; use the positive influence of financial leverage, and assume that the cost of capital and

the company's repayment ability are lower than the rate of return of borrowed funds; maintain normal operation based on cash flow. Keep abreast of the cash situation and whereabouts.

2 Improve solvency: improve profitability and cash flow level, broaden the market, improve quality, reduce costs, reduce inventory, adopt appropriate repayment methods, grasp the expected time of capital recovery and payment, and maintain the integrity of financial information.

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