



Cash or earnings: which comes first?

Both cash flow and earnings are important indicators of the well-being of a company. But which of the two is the leading indicator? Will good cash flows generate higher earnings, or is it the other way around: do high earnings precede good cash flows?

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Earnings occupy a central position when one judges the financial performance of a company. Simply put, earnings are the difference between revenues and cost of sales, operating expenses and taxes. Cash flow, on the other hand, is the in- and outflow of cash in the company. Three categories of business activities determine the net cash flow

for a given financial period: operating activities, investment in assets, and financing activities.

Shareholders scrutinise earnings closely, because they represent the return on their investment. Earnings, therefore, are used to calculate the return on equity. Companies that generate high earnings attract investors – this increases the share

price. Consequently, earnings grow the value for shareholders in the company. Good earnings also increase the prospects of dividends being paid to shareholders.

However, high earnings alone are not sufficient for a company to be judged financially viable; there must also be enough cash to keep the business liquid. Both creditors and shareholders are interested in cash flows. Creditors want to know whether the company is able to meet its repayment obligations. Besides liquidity concerns, shareholders are interested in the company's ability to pay dividends.

Various studies have been done about the predictive ability of cash flow and earnings, but mostly with contradictory results. Recent research at the University of Stellenbosch Business School (USB) investigated this intriguing question of causality between cash flow and profitability anew to see if more conclusive answers could be obtained.

Data and variables

The research aimed to determine whether a degree of causality exists between cash-flow variables

Earnings variables

Sales	
<i>Less:</i>	
Cost of sales	
Gross profit	
<i>Less:</i>	
Administration and selling expenses	
Depreciation	
Loss on asset disposal	
Profit before interest and taxation	EBIT
<i>Less:</i>	
Interest expense	
Investment income	
Profit before taxation	PBT
<i>Less:</i>	
Taxation	
Profit after taxation	PAT
<i>Less:</i>	
Minority interest / Preference dividends	
Earnings	EARN

and earnings variables, and which category has the capability to predict the other.

The USB's database on company financial information was used for the analysis. This database contains information on all South African industrial companies listed on the JSE Securities Exchange (previously the Johannesburg Stock Exchange) since 1974. Since the cash-flow statement only came into effect in 1989, data from the source and application of funds statement, which was in use prior to 1989,

were converted to cash-flow information.

Because major sector changes took place and many companies delisted after 2000, the research examined data for the 20-year period from 1981 to 2000. The investigation included only companies with full sets of data for this period. Information on 70 companies from 16 different sectors formed the final data set that was analysed.

Four earnings measures (EBIT, PBT, PAT and EARN) were compared to three cash-flow measures,

SUB1, SUB2 and SUB3. The way each variable was calculated is shown in the boxes **above** and **below**.

■ Analysis: pitfalls and checks

In financial econometrics, sophisticated techniques are used in an attempt to forecast the future based on past financial data. Predicting future values often involves that time series data are regressed on their own lagged values, or on those of another associated time series variable.

Cash-flow variables

Operating income before interest and taxation (EBIT)	
<i>Adjusted for non-cash items:</i>	
Depreciation	
Loss on asset disposal	
Cash generated by operations	
Plus:	
Investment income received	
Cash generated by operations after investment income	SUB 1
<i>Adjusted for:</i>	
Net working capital movements	
Cash generated from operations	SUB 2
<i>Less:</i>	
Interest paid	
Taxation paid	
Cash flow from operating activities	SUB 3

However, care must be taken in applying these techniques. Regression analysis of time series data implicitly assumes that the underlying time series is stationary. Therefore, before any attempt can be made to regress one variable on another, the time series must be tested for stationarity. The co-integration of two time series must also be taken into account. In the 1990s, ground-breaking studies on financial time series emphasised the need for researchers to attend to the properties of stationarity and co-integration in order to build reliable regression models based on time series data. The findings of these studies cast serious doubt on previous findings on the causal relationship between cash flows and earnings.

Consequently, if one is to be able to examine causality or to build a regression model for forecasting, the variables must be stationary. Calculations with non-stationary data can lead to spurious regression. The results may suggest a statistically significant relationship, but all that is found is evidence of contemporaneous correlations rather than meaningful causal relations.

The researchers, therefore, heeded these warnings and applied proper tests on all the data before tests for causality were conducted.

A technique called differencing is often used to convert a non-stationary time series into stationary data. But data-differencing must be applied with due consideration of the co-integrated nature of the data, since long-term relationships between variables may be lost when differencing co-integrated data. This is especially important since successive steps of differencing are sometimes needed to obtain stationary data. By using the statistical software package EViews, the necessary checks could be performed and causality tests were done at different levels of differencing.

Findings still not conclusive ...

The concern that financial time series data would not be stationary was justified. Non-stationarity was confirmed by the tests performed. The best results for stationarity were obtained by calculating the second differences of the variables.

Moreover, the risk of spurious correlation was



Larger data sets are needed to yield conclusive findings

proved, because a vast number of pairs of variables indicated a significant correlation with one another, but when stationarity and causality were taken into account, only a few of these pairs remained correlated to one another in a statistically significant way.

The study found that, when models were estimated before any differencing was applied, cash flows caused earnings. However, when first-order differencing was applied to the data, the relationship tended to reverse, so that earnings were showed to cause cash flows.

In one specific case, namely Allied Technologies, it was found that cash flows cause earnings even in first differences. In the case of Pick n Pay, the opposite was found. This was against the initial

expectation that – because the cash flow of Pick n Pay is well known to be larger than earnings – cash would be the driver of future earnings. But it could be reasoned afterwards that with Pick n Pay's negative working capital cycle, earnings would be the dominant driver as long as it maintained growth in sales.

... but valuable research lessons were learned

The overall findings were mixed. It could not be established beyond doubt whether earnings cause cash flows, or vice versa. Nevertheless, the USB study proved to be a valuable research exercise. Much has been learned, as in recent international studies, about the behaviour of financial time series data and the application of more sophisticated techniques in building regression or forecasting models.

Larger data sets are needed to yield conclusive findings. By using panel data, such as pooling the 70 companies into cross-sectional time series data, one will obtain 1 400 data points instead of the 20 used in this analysis. This should help greatly to improve the accuracy and conclusiveness of future research.



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Write to us :

In your field of business, would you emphasise profitability or cash-flow more strongly for long-term business success?
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