CAN WE EVALUATE ECONOMIC FEATURES OF COMPANIES BY USING CASH FLOW INFORMATION IN A DIFFERENT WAY? EVIDENCE FROM TURKISH MANUFACTURING INDUSTRY

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ABSTRACT

Cash is an axis around which each company's economic life rotates. That's why users of financial statements have been showing an increased interest in the cash flow information provided by companies. There have been several methods used to analyze the information gathered from the Statement of Cash Flows each of which give us a useful information about companies' fiscal standing. This paper focuses on the Statement of Cash Flows data of the manufacturing companies listed in Borsa Istanbul X100 each year over the 2011-2015 period to analyze whether Gup and Samson's cash flow pattern model developed in 1993 can be used to characterize a company from financial standpoint. First classified listed manufacturing companies using Gup and Samson's model and calculated selected financial ratios which are used in determining a company's financial characteristics. Then used Kendall's Tau-b model to analyze the correlation between cash flow patterns and selected financial ratios.

Keywords: Cash, Cash Flow, Ratio Analysis

NAKİT AKIŞ BİLGİLERİNİ FARKLI ŞEKİLDE KULLANARAK ŞİRKETLERİN EKONOMİK ÖZELLİKLERİNİ DEĞERLENDİREBİLİR MİYİZ? TÜRK İMALAT SEKTÖRÜ ÖRNEĞİ

ÖZET

Nakit akış bilgisi bir işletmenin ekonomik faaliyetlerini yönlendiren önemli bir veridir. Bu nedenledir ki finansal tablo kullanıcıları işletmeler tarafından sunulan nakit akış bilgisine her geçen gün daha fazla ilgi göstermekte ve işletmelerin finansal durumu hakkında fikir sahibi olabilmek için nakit akış tablosundan edinilen bilgilerin analizinde her biri birbirinden faydalı pek çok yöntem kullanmaktadırlar. Bu çalışma bir şirketin finansal özelliklerinin 1993 yılında Gup ve Samson tarafından geliştirilmiş olan model kullanılarak tespit edilmesinin mümkün olup olmadığını analiz etmek amacı gerçekleştirilmiştir. Bunun için öncelikle 2011-2015 dönemi süresince imalat sektöründe faaliyet gösterip hisseleri her yıl Borsa İstanbul X100'de işlem gören işletmeler söz konusu model temel alınarak sınıflandırılmış, takiben işletmeleri finansal olarak karakterize etmek için yaygın olarak kullanılan finansal oranlar söz konusu işletmeler için hesaplanmış ve bu iki grup arasında bir ilişki olup olmadığı Kendall's Tau_b yöntemi kullanılarak analiz edilmiştir.

Anahtar Kelimeler: Finansal Oran Analizi, Nakit, Nakit Akış

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Introduction

Companies are clearly aware of the fact that no matter how much profit they make, unless this profit is cash-backed, they cannot survive in a long run. That's why an appropriate evaluation of the cash flow information is vital to financial statement users especially to the top management since it is highly believed that it carries an invaluable information essential for a complete analysis of a company's financial standing.

The Statement of Cash Flows is one of the four basic financial statements that a company has to prepare and it provides its users with the cash inflow and outflow information during a specified period. In other words it reveals how a company spends its money (cash outflows) and where that money comes from (cash inflows).

This paper is the second part of the study (Kepçe, 2016), previously conducted to find out whether we can characterize companies by using the model developed by Gup and Samson in 1993 and it focuses on the reliability of the model with a slight modification. For this purpose manufacturing companies operating in Turkey which have been listed each year from 2011 through 2015 have been classified by using the modified model and the correlation between the model and financial ratios which are most frequently used to understand the financial characteristics of companies is analyzed by using Kendall's Tau-b method.

Literature Review

When analyzed in a rational and logical manner, Statement of Cash Flows is one of the most useful financial statements that provide a vital financial information to the top management of the company since none of the management of the companies, institutions or organizations can carry out their activity without money. That's why there have been several studies conducted to evaluate the information gathered from Statement of Cash Flows in a better way.

One of the approaches to evaluate cash flow information is the model developed and analyzed by Gup and Samson in 1993. They described eight cash flow patterns based on the sign of the cash flows not the amounts, generated from operating, investing and financing activities and analyzed whether those patterns can be used to characterize companies' economic condition. They concluded that this method is not sufficient by itself to characterize a company's economic condition but can be used together with other analysis.

Steyn -Bruwer and Hamman (2005) used the same model Gup and Samson developed in 1993 and conducted a study in listed South African Industrial companies by linking the model to life-cycle theory. They concluded the following shortcomings in Gup and Samson's model of cash flow patterns:

> The first shortcoming identified is that the Statement of Cash Flows is a cash based not an accrual based statement which means no non-cash transactions are included. However, there might have been material information that could have changed the signs of these categories may have been excluded from the cash flow categories.

The second shortcoming identified is that each category in a Cash Flow Statement consists of various activities, the effects of which may be cancelled out when they are reported together in the same category.

> The third shortcoming identified is that the model is based on not the magnitude but on the signs of categories.

The fourth shortcoming identified is that cash flows may be advanced or deferred from one period to another but in Gup and Samson's (1993) they only used cash flow information for a single financial period. However it has been all agreed that this method can be used as a complement to other analysis made by using the statement of cash flows.

In 2012, Aktaş and Kargın conducted a study in Turkey by using Gup and Samson's model developed in 1993 by taking into Steyn -Bruwer and Hamman's (2005) one of the criticisms into consideration. They used cash flow information for 4 years from 2007 to 2010. They first classified listed companies in Turkey based on their cash flow patterns and industry in which they operate. Then to figure out how much these patterns fit their real economic condition they only took asset size of those companies and compared the results. They also agreed that this model can be used to support the results of other analysis.

Gup and Samson's (1993) Model Based on Eight Cash Flow Patterns

IAS 7 Statement of Cash Flows requires this statement to be prepared in three sections disclosing cash flows from operating, investing and financing activities, each of which is calculated and reported in the statement separately from others. Cash flows from operating activities reflects the cash generated from the main operations of a company whereas cash flows from investing and financing activities reflect what the business does with its cash coming from its operations and the sufficiency of cash to meet other functions of the company.

Gup and Samson (1993) described eight cash flow patterns to characterize companies' economic condition. Since cash flows from operating activities provide the main cash flow for making investments, repaying investors and creditors, they decided to take cash flows from operating activities as a base to the order of the patterns. As a result of this decision, from Pattern 1 through 4 all cash flows from operating activities are positive and from Pattern 5 to 8 all cash flows from operating activities are negative. In the previous study conducted (Kepçe, 2016) patterns are used exactly same as the original model however for the purpose of this study a slight modification is made in the numbers of the patterns by taking into consideration of where the company is in its life cycle for understanding and evaluating the results of the analysis better and easier.

Exhibit: 1 Summary of the Modification Made in the Original Model

Pattern*	Gup and Samson's	In this paper	Name Given to Each Pattern
+,+,+	Pattern 1	Pattern 1	Treasure Chest
+,-,-	Pattern 2	Pattern 4	Young and Fast Growing
+,+,-	Pattern 3	Pattern 5	Growing
+,-,+	Pattern 4	Pattern 3	Mature and Successful
-,+,+	Pattern 5	Pattern 6	Mature and Declining
-,-,+	Pattern 6	Pattern 2	Declining
-,+,-	Pattern 7	Pattern 7	Shrinking
-,-,-	Pattern 8	Pattern 8	Dissolving
*Cash Flows From Operating Activities; Investing Activities; Financing Activities			

Below patterns are explained with their names used in this study:

Pattern 1 (+, +, +) - refers to a company which generates positive net cash flow from its operating, investing and financing activities. It is accepted as an unusual situation for a company to generate positive net cash flow from all of its activities. So for the companies which have positive cash flow from operating, investing and financing activities, it has been believed that sooner or later this money

will be used in repaying long term debts or making investments to expand their operations. Companies which fall into this category are named as *"treasure chest"*.

Pattern 2 (-, - , +)– refers to a company which generates net negative cash flow from its operating and investing activities and positive net cash flow from its financing activities. It characterizes to a young, fast growing company. This pattern usually suggests that negative operating cash flow is temporary because net cash flows from investing activities mean that this company is making investments and positive cash flows from financing activities mean investors and creditors continue lending money. In other words it is believed that if investors and creditors keep on lending money to this company, they must believe in the company's activities. Companies which fall into this category are named as *"young and fast growing"*.

Pattern 3 (+, -, +) – refers to a company which generates positive net cash flow from both its operating and financing activities and net negative cash flow from its investing activities. In other words a company with this kind of cash flow characteristics, cannot generate enough cash inflow from its operating activities to make its investments, that's why uses long term debt. It is believed that this pattern characterizes a growing company which needs extra funds to expand its operations. Companies which fall into this category are named as *"growing"*.

Pattern 4 (+, -, -) – -refers to company which generates positive net cash flow from its operating activities and net negative cash flow from its investing and financing activities. It characterizes a mature and successful company which generates net positive cash flow from its operating activities and uses this fund in its investments and repayment of its debt. It is believed that this pattern should be relatively common that can be observed. Companies which fall into this category can be named as *"mature and successful"*.

Pattern 5 (+, +, -) – refers to a company which generates positive net cash flow from its operating and investing activities whereas net negative cash flow from its financing activities. Like Pattern 1 this pattern is also believed to be relatively unusual. Because although company is generating positive cash flow from its operations, it also sells its long term assets to generate cash to repay its long term debt. It is an unusual pattern because company is generating positive cash flow however by selling its long term assets it is duplicating its net cash inflow. Companies which fall into this category can be named as *"mature and declining"*.

Pattern 6 (-, +, +) - refers to a company which generates a negative net cash flow from its operating activities and net positive cash flow from its investing and financing activities. Like Pattern 1 and 5, this pattern is also believed to be unusual. This pattern characterizes a company which tries to finance its operations by selling its long term assets and by long term borrowing since it cannot generate enough cash inflow from its operations. In the long run selling long term assets will reduce the growth potential for the company, and investors and creditors will give up investing extra capital to this business. Companies which fall into this category can be named as *"declining"*.

Pattern 7 (-, +, -) – refers to a company which generates net negative cash flow from its operating and financing activities and net positive cash flow from its investing activities. This pattern characterizes a company which cannot generate enough cash inflow for repayment of its debts so chose to sell its long lived monetary assets in order to find funds to repay its debt. A company with such cash flow pattern cannot survive in long run without going into liquidation. Companies which fall into this category can be named as *"shrinking"*.

Pattern 8 (-, -, -) – refers to a company which generates net negative cash flow from its operating, investing and financing activities. Like Patterns 1, 5 and 6 this Pattern is also unusual because this pattern means that company is making new investments, and repaying its debt and at the same time cannot generate cash inflow from its operations. Companies which fall into this category can be named as *"dissolving"*.

Data and Methodology

The aim of this paper is to find out whether we can characterize companies by looking at just signs of their cash flows (inflow or outflow not the amount) from their operating, investing and financing activities. For this purpose, first companies operating in Turkish manufacturing industry which are listed each year from 2011 through 2015 are classified by Gup and Samson's modified model and distribution of these companies with respect to their cash flow patterns are presented in Exhibit 2.

Exhibit: 2 Distribution of Companies in Turkish Manufacturing Industry

	Cash Flow Patterns (Operating, Investing, Financing)*							
Variables	**One**	**Two**	**Three**	**Four**	**Five**	**Six**	**Seven**	**Eight**
	+++	+--	++-	+-+	-++	--+	-+-	---
Distribution of 131 companies (%)	2,3	36,6	7,6	28,2	3,1	19,1	2,3	0,8
Number of Companies Each Pattern	3	48	10	37	4	25	3	1
*Made by using cash flow information for the year of 2015.								

Out of 131 listed companies which are operating in Turkish manufacturing industry highest share belong to companies which are classified as *young and fast growing*, it is followed by companies classified as *mature and successful* and the lowest shares belong to companies which are classified as *treasure chest*, *shrinking* and *dissolving*. Based on this this classification we can say that Turkish manufacturing industry is mainly dominated by *young and fast growing* companies and they are followed by *mature* companies.

In order to evaluate how closely the data fit the expectations already described above, financial ratios which are used to understand the financial condition of a company are calculated and analyzed. The definitions of financial indicators used are presented in Appendix. These indicators are not intended to be collectively exhaustive. Internal Growth Rate ratio which is considered in Gup and Samson's is excluded in this analysis because as for most of the companies this ratio is found to be "undefined".

Although the ratios give us a parametric data, definitions in the model are nominal. That's why Kendal's Tau-b correlation is used to figure out whether there is a significant correlation between the patterns and financial ratios of firms with the following hypothesis:

H_0= There is not a significant correlation between Cash Flow Patterns and Financial Ratios

H1=There is a significant correlation between Cash Flow Patterns and Financial Ratios

Exhibit 3: Correlations between Models and Selected Financial Ratios

CORRELATIONS

		MODEL	ASSET SIZE	DEBT TO ASSETS	ASSET GROWTH	ROA	ROE
MODEL	**Correlation Coefficient**	1,000	,035	-,193**	-,121	,184**	,158*
	Sig. (2 tailed)	.	,592	,004	,070	,006	,016
	N	131	131	131	131	131	131

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

When we look at the results of the analysis which is presented in Exhibit 3:

- At 0,592 significance level we cannot talk about a correlation between pattern group and the asset size. In other words a company's asset size is free from its position in its life cycle.
- At 0,004 significance level pattern group and debt to asset ratio are negatively correlated. In other words as the pattern number increases from one to eight (as the company gets mature and then declining, shrinking and dissolving stages) its debt to equity ratio decreases. It is logical and this may result from companies' decisions to finance their operations and investments. They can either use external financing or they can use their own resources. As company grows, it may have more tendency to finance its operations and investments with their own resources and it will result in lower debt to asset ratio. On the other hand as a company gets mature its total assets may increase more than its debt and this may cause a reduced debt to equity ratio. Even though the correlation is significant, the correlation level is very low.
- At 0,070 significance level we cannot talk about a correlation between pattern group and the asset growth. In other words a company's asset growth is free from the position it has in its life cycle. So this is consistent with the result we find about the correlation between pattern group and the asset size.
- At 0,006 significance level pattern group and return on asset (ROA) ratio are positively correlated. In other words as the pattern number increases from one to eight (as the company gets mature and then declining, shrinking and dissolving stages) its return on assets (ROA) increase. It is generally what is expected from a company as the company grows older and mature, it will have higher return on the asset investments. As the company gets into declining, shrinking and dying stage company may need to sell its assets to generate extra income. Even though the correlation is significant, and the correlation level is very low.
- At 0,016 significance level pattern group and return on asset equity (ROE) ratio are positively correlated. Even though the correlation is significant, the correlation level is very low. In other words as the pattern number increases from one to eight (as the company gets mature and declining stage) its return on equity (ROE) increases. It is generally what is expected from a company as the company grows older and mature, it will have higher return on its equity invested.

As it can be seen from the results of the analysis, patterns and some of the financial ratios are correlated, however the correlation between them is very low, which means the patterns are found to be insufficient for solely characterizing a firm from financial standpoint.

Conclusion and Discussions

Users of financial statements have been showing an increased interest in cash flow information provided by companies since a company's solvency, profitability and continuity of its activity highly depends on its cash flows. That's why there have been several methods used to analyze the information gathered from Statement of Cash Flows each of which give us a useful information about companies' fiscal standing.

Gup and Samson's model, which is used in this paper with a slight modification, is one of those methods which focuses on the sign of cash flows (positive or negative) from company's operating, investing and financing activities rather than their amounts.

In this study based on the model mentioned above first cash flow information of manufacturing companies operating in Turkey listed each year from 2011 to 2015 period gathered and companies are classified taking the model into consideration as a reference. It is followed by the calculation of financial ratios which are typically used to understand the financial condition of a company.

In order to evaluate how closely the data fit the expectations already described above, Kendal's Tau-b correlation is used. It is found out that patterns and some of the financial ratios are correlated, however the correlation between them is very low, which means the patterns are found to be insufficient for solely characterizing a firm from financial standpoint. However, this model can be used as a complement to other analysis can give very useful additional information.

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Appendix

Asset Size =	Total Assets (AT)
Asset Growth Rate/5 years =	Compound growth rate of total assets for 5 years $[(AT_{2015}/AT_{2011})^{1/5}-1] \times 100$
Debt-To-Assets =	Total Debt (DT) divided by total assets (AT), then multiplied by 100. DT sum of the long term debt and debt in current liabilities.
ROA	Return on total assets. Income before extraordinary items divided by AT, then multiplied by 100.
ROE	Return on equity. Income before extraordinary items divided by common equity, then multiplied by 100.

*These definitions are based on Gup and Samson's (1993) S*tudy.