

DECISIONS ON IPO IN TURBULENT TIMES

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Abstract:

The article refers to the problem of the IPO waves on the Warsaw Stock Exchange (WSE). In the literature there are two main proposed explanations for variation in aggregate IPO volume: the capital demands hypothesis, and the investor sentiment hypothesis. The aim of the paper is to test 1) how financial crisis translated into IPO waves and 2) which factor (capital demand or market condition) is better correlated with the IPO waves on the WSE. The main hypotheses of this article are 1) the financial crisis translated into the decrease in the number of IPOs and the value of IPO and 2) the waves of IPO are correlated with market condition. The findings of this article show that the number of IPO companies and the value of IPO issuance is correlated with the capitalization of stock exchange and GDP growth, while capitalization is correlated with GDP growth, but GDP depends on activity (optimism) of companies. Capitalization depends also on activity (optimism) of investors. In the paper, the analysis covers the years 2005 – 2015 and companies that raised new capital by IPOs on the main market of the WSE. We compared IPO volume in absolute and relative terms (IPO volume growth). The IPO volume was compared with WIG pricing (WSE index) and GDP level. The IPO volume growth was compared with WIG growth, WIG RR (WIG annual rate of return), and GDP growth. The article is organized as follows: we start with an overview of the literature on IPO reasons and waves, and then we conduct the analysis and present conclusions.

Keywords: IPO waves, capital demands hypothesis, the investor sentiment hypothesis, market condition

1. IPO WAVES – LITERATURE REVIEW

In most cases, the primary motive for a company to go public is the desire to raise equity capital for the firm and to create a public market in which the founders and other shareholders can convert some of their wealth into cash at a future date. Going public is a real driver for the firm's development, enabling it to increase its equity while also reinforcing its structure and reputation. The public status also provides the firm with an objective valuation as share prices are listed on a daily basis. (de Jong & Legierse, 2013; Benninga et al., 2005, pp. 115-132)

Benniga et al. (2005), having studied the optimal conditions for an IPO, concludes that investment financing is not the only rationale to launch an IPO (Batnini & Hammammi, 2015, pp. 1679 -1692). Ibbotson and Jaffe (1975) and Ibbotson, Sindelar and Ritter (1988, 1994) show that there are pronounced cycles at a future date in the number and volume of new issues. They document substantial fluctuations in IPO volume and attribute this phenomenon to hot/cold issue markets. There are waves in IPO volume and a number of companies entering the stock market and IPOs are hot and cold markets, with many and few IPOs, respectively. However, they do not empirically test the underlying factors that contribute to the variation. Thus, while some studies deal with the substantial fluctuations in IPO volume and try to give some explanations for such variation, very few studies comprehensively examine the underlying causes of IPO volume cycles. (de Jong & Legierse, 2013) However, existing cold and hot IPO markets determine the amount of equity capital raised during a IPO process. Enterprises issuing shares during a hot IPO market can raise more capital than during a cold market. This means that waves of IPO are the outcomes of rational managers' decisions. Companies take into account market conditions and decisions on an IPO are made when market conditions give chances for an IPO to be successful. The research in this area were carried out by, for example, Deeds et al. (1996) and Yang et al. (2013). (Wawryszuk-Misztal, 2015, pp. 1429-1436)

In the literature, two main explanations for variation in aggregate IPO volume are proposed: the capital demands hypothesis, and the investor sentiment hypothesis (Lowry, 2003, pp. 3-40).

The capital demands hypothesis says that variation in IPO volume is caused by changes in private firms' aggregate demand for capital. General economic conditions vary over time. When conditions are better and an expected growth in the economy is higher, companies tend to have higher demands for capital. This higher economy-wide demand for capital translates into more companies seeking financing. That is why the number of companies having IPOs increases when private firms' aggregate demand for capital increases (Lowry, 2003, pp. 3-40). It means that companies' investments opportunities vary with the business cycle, and IPO volume varies with it (Lowry, 2003). In this perspective GDP growth is important. So IPO volume is expected to be high in an expansionary phases of the business cycle and low in periods of economic contraction (de Jong & Legierse, 2013). Capital demand is then affected by the changes in the business cycle and economic conditions. If economic expansion results in better investment opportunities, then firms tend to have greater capital demand to finance these projects. In general, IPO volume increases when aggregate capital demand increases. Specifically, economic expansion lowers the cost of equity, inducing more firms to conduct IPOs. And economic expansion leads to increase in equity issuance in the early phases of the business cycle.

The investor sentiment hypothesis posits that variation in the level of investor optimism causes the costs of issuing equity and therefore IPO volume to fluctuate over time. During some periods, investors are overly optimistic and are willing to pay more for firms than they are worth it. During these periods, the costs of going public are especially low. Consequently, a large number of firms find it optimal to go public. In contrast, during periods of low sentiment, investors may undervalue firms, causing IPO volume to be low. If individual investors are occasionally overoptimistic and willing to pay more for firms than they are worth, then value-maximizing managers will issue equity during these periods of high investor sentiment (Lowry, 2003, pp. 3-40). It is more likely that firms issue an IPO in times when equity valuation in general is high (Banerjee et al., 2012, 2016). (de Jong & Legierse, 2013)

Some empirical regularities suggest that entrepreneurs indeed time their decisions to go public. The coincidence of IPO waves with relatively high market prices is found by Benninga (Benninga et al., 2005, pp. 115-132).

Equity market timing refers to the practice of issuing shares at high prices and repurchasing at low prices. The intention is to exploit temporary fluctuations in the cost of equity relative to the cost of other forms of capital. Firms tend to issue equity instead of debt when market value is high (Baker & Wurgler, 2002).

2. IPO WAVES AND THEIR RATIONALE – RESEARCH REVIEW

There are some studies showing that IPO waves are results of capital demand. Supporting empirical evidence is provided by Lowry (2003), for example. Firms invest more when they expect higher profits. Yung, Colak, Wang (2008) developed a model in which time-varying real investment opportunities lead to time varying adverse selection in the market for initial public offerings.

Dittmar and Dittmar (2008) further confirmed that changes in economic conditions affect aggregate capital demand and drive waves of equity issuance.

There are many more studies showing that IPO waves are results of market conditions. Lowry and Schwert (2002, 2004) note that IPO volume tends to be higher following periods of especially high initial returns. They find that IPO volume tends to be higher following periods of high initial returns because more firms are willing to take advantage of hot markets. Batnini and Hammammi (2015) prove the existence of a significant relationship between past stock market returns and a number of IPOs. Before setting the date for an IPO, managers analyze long term financial market yields. Pastor and Veronesi (2003) find that IPO volume is negatively related to future market returns as well as to recent changes in market return volatility, which itself is positively related to expected market return. They show that IPO waves in their model tend to be preceded by high valuations for the market as a whole. Schultz (2003) argues that equity issuers appear to time the market ex post but not ex ante, because market peaks are known only ex post. Ritter and Welch (2002) also argue that perhaps the most important question to be answered is why issuing volume drops so radically following stock market drops. They think that IPO waves should be preceded by high market returns, followed by low market returns. When market conditions worsen, stock prices drop and IPO volume declines because private firms choose to wait for more favorable market conditions before going public.

To provide an analytical framework for IPO waves, Pástor and Veronesi (2005) develop a model of optimal IPO timing in which IPO waves are caused by expected market return decline, expected aggregate profitability increase or increases in prior uncertainty about the IPO average future profitability. Building on the concept of IPO uncertainty, Lowry et al. (2010) find that the 'hot-issue' phenomenon is characterized by high initial returns and large IPO volume as well as high variability of initial returns.

Beaulieu and Bouden (2015) found that high initial returns are followed by a large number of IPOs. More firms are likely to go public in 'hot-issue' market periods to potentially benefit from the overvaluation of their shares by overoptimistic investors.

Lowry et al. (2010) note that a 'hot-issue' phenomenon is characterized by not only high initial returns and large IPO volume, as shown in the prior literature, but also a high variability of initial returns.

But Pastor and Veronesi (2005) also find that IPO waves occur as a response to market conditions rather than market misvaluations. They find also that IPO volume is more closely related to recent changes in stock prices than to the level of stock prices.

Pastor and Veronesi (2005) notice that IPO waves are preceded by an increase in market yields and followed by decreases. IPO concentrations appear as soon as forecasts begin predicting an increase in expected yields. When the market value increased substantially over the past two years, investors forecast a market reversal in the near future and a strong decrease. Then it is the right moment for a firm to launch an IPO.

These studies confirm the intuitive notion of the impact of capital market variation on IPO waves.

However, the lead-lag effect between a number of IPOs and market performance is the object of little research. An IPO is not an instant operation; it requires a certain amount of legal, financial and organizational preparation, that is why an IPO is generally decided several months prior to the actual

launch. Some firms carry out an IPO despite market constraints and shareholder demands. The firms observe the market before making a decision to go public. After this decision was made, the directors stopped observing the markets (Pastor et al., 2009).

In summary, the results suggest that IPO volume is positively related to companies' demands for capital and the level of investor sentiment. With respect to all these factors, dynamics at both the economy-wide level and at the capital market level significantly affect the firms' decisions. (Lowry, 2003, pp. 3-40)

3. HYPOTHESIS DEVELOPMENT AND METHODOLOGY

The aim of the paper is to test which factor (capital demand or market condition) is better correlated with the IPO waves on the Warsaw Stock Exchange. We assume that there should be a positive correlation between capital demand and market condition and IPO waves, for:

1. higher GDP growth causing higher investment opportunities (in real economy) results in entrepreneurs' optimism, and in higher demand for capital,
2. higher stock prices and rates of return causing higher investment opportunities (on financial market) result in investor optimism, and in higher supply of capital.

The Warsaw Stock Exchange (WSE) is considered to be one of the most successful regional stocks (Glavina, 2013). Founded in 1991, the WSE organizes and operates trading on three markets: WSE Main Market (trade in equities, equity-related financial instruments and other cash markets instruments as well as derivatives), NewConnect (trade in equities and equity-related financial instruments of small and medium-sized enterprises – alternative market) and Catalyst (trade in corporate, and municipal bonds).

The analysis covers the years 2005 – 2015 and companies that raised new capital by IPOs on the main market of the WSE. This group does not cover those entities which: 1) offered for sale only already existing shares 2) came to the main market from the alternative market, 3) are financial institutions (banks, insurance companies), 4) are foreign companies.

The data used in the analysis were gathered from: 1) the prospectus with appendixes and current reports for each of the initial public offerings by the firms in the sample, 2) the WSE data, 3) the Central Statistical Office data, as well as other public sources.

Table 1: Value of IPO on the Warsaw Stock Exchange from 2005 to 2015.

Year	Value of IPO (in mil PLN)	No. of IPO companies	Average value of IPO (in mil PLN)	Median – value of IPO (in mil PLN)	Min (in mil PLN)	Max (in mil PLN)
2005	4,876.5	24	203.2	22.2	3.0	2,682.0
2006	1,673.6	33	50.7	20.5	3.8	249.5
2007	2,926.7	57	51.3	32.5	4.7	370.5
2008	2,886.7	24	120.3	12.4	0.1	1,989.3
2009	6,711.4	10	671.1	17.6	1.8	5,968.8
2010	695.7	18	38.6	35.2	3.5	90.0
2011	360.2	11	32.7	25.9	4.8	76.5
2012	82.7	4	20.7	19.6	12.8	30.7
2013	342.9	7	49.0	30.0	11.4	136.2
2014	351.4	7	50.2	50.5	6.3	155.6
2015	523.0	9	58.1	33.2	19.6	143.0

Source: first hand collected data

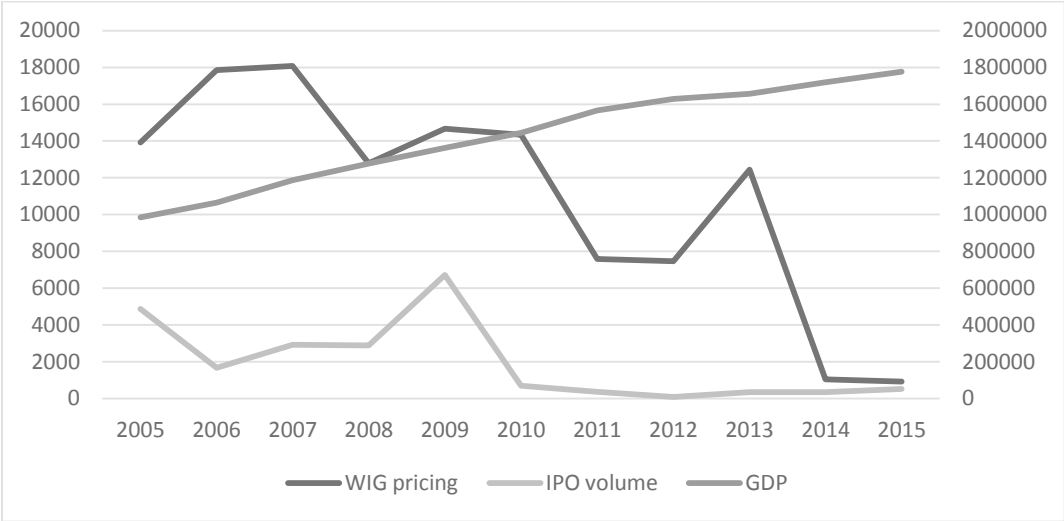
The average annual value of IPO on the Warsaw Stock Exchange from 2005 to 2009 is equal to 3,815 mil PLN and from 2010-2015 it is over ten times lower (366.6 mil PLN). After the breakdown in the value of IPO in 2009 and a further decline up to 2012, the increase in the value of IPO began in 2013. The number of companies that raised new capital by IPO started to increase after 2012 but it is still

much lower than in 2005-2010. The higher average value of IPO in 2009 is due to one initial public offer of the highest value ever on the Warsaw Stock Exchange in 2005-2015.

4. RESEARCH FINDINGS

We compared IPO volume in absolute and relative terms (IPO volume growth). The IPO volume was compared with WIG pricing (the WSE index) and GDP level. The IPO volume growth was compared with WIG growth, WIG RR (WIG annual rate of return), and GDP growth.

Picture 1: Correlation between IPO volume, WIG pricing and GDP level in 2005-2015.



Source: first hand collected data

Picture 1 captures the waves of IPO on the Warsaw Stock Exchange in combination with WIG pricing and GDP level. GDP level increase from about 985 bn PLN in 2005 to 1.777 bn in 2015. There is no decline period in GDP level in 2005-2015. WIG pricing shows the opposite trend. There are three peaks: in 2007, 2009 and 2013 and three valleys: in 2008, 2012 and 2015. WIG pricing starts with app. 14,000 level in 2005 and decline to less than 1,000 level in 2015.

Table 2: Correlation coefficient between IPO volume, WIG pricing and GDP in 2005-2015.

	WIG pricing	IPO volume	GDP
WIG pricing	1		
IPO volume	0,522	1	
GDP	-0.814*	-0.648*	1

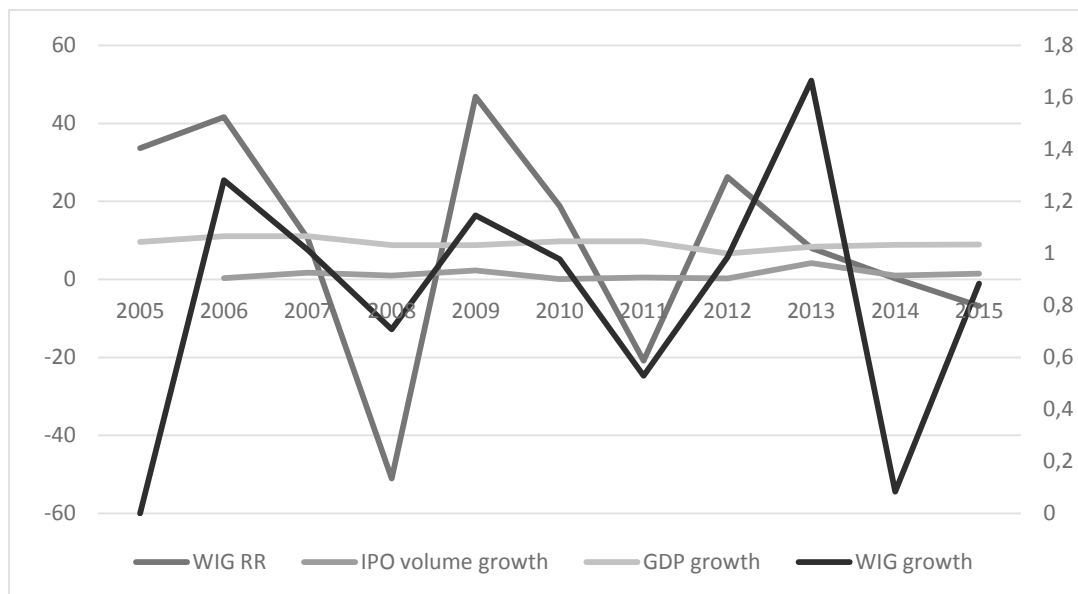
* Correlation significant at the 0.05 level.

Source: first hand collected data

Our research findings show that the IPO volume has a higher correlation coefficient with GDP level than with the WIG pricing. What is also interesting, the research shows that the higher correlation coefficient is for the correlation between WIG pricing and GDP.

In the next step we compare the above data in relative terms.

Picture 2: Correlation between IPO volume growth, WIG growth, GDP growth and WIG RR in 2005-2015.



Source: first hand collected data

Picture 2 shows how the level of WIG growth, IPO volume growth, GDP growth and WIG RR changed from 2005 to 2015 (previous year = 100). IPO volume growth were lower than 1.0 for five years during the period 2005-2015 and GDP growth was higher than 1.0 for every year from the period 2005-2015. There are significant fluctuations in the level of WIG growth (even 0.08 in 2014). Huge fluctuations are also noticed for the WIG annual rate of return. WIG RR varies from -52% in 2008 to 33% in 2005.

Table 3: Correlation coefficient between IPO volume growth, WIG growth, GDP growth and WIG RR in 2005-2015.

	WIG growth	IPO volume growth	GDP growth	WIG RR
WIG growth	1			
IPO volume growth	0.530	1		
GDP growth	0.042	-0.131	1	
WIG RR	0.468	0.051	0.101	1

Source: first hand collected data

Our research findings show that IPO volume growth has a higher correlation coefficient with WIG growth. A lower correlation is noticeable for GDP growth but in this case the correlation coefficient has negative value. The lowest correlation coefficient (positive) is with WIG RR. However WIG RR is strongly correlated with WIG growth.

5. CONCLUSIONS

In the literature there are two main proposed explanations for variation in aggregate IPO volume: the capital demands hypothesis, and the investor sentiment hypothesis. There are some studies showing that IPO waves are results of capital demand, e.g. Lowry (2003), Yung, Colak, Wang (2008), Dittmar and Dittmar (2008). However, there are many more studies showing that IPO waves are results of market conditions, e.g. Lowry and Schwert (2002, 2004), Batnini and Hammammi (2015), Pastor and Veronesi (2003, 2005), Schultz (2003), Ritter and Welch (2002), Lowry et al. (2010), Beaulieu and Bouden (2015), Pastor et al. (2009).

Our research findings confirm the validity of both of the two pre-established hypotheses: 1) the financial crisis translated into the decrease in the number of IPOs and the value of IPO and 2) waves of IPO are correlated with market condition. Our research findings show that financial crisis caused the significant decrease in the volume and value of initial public offer on the Warsaw Stock Exchange. The number of IPO companies and the value of IPO issuance is correlated with the capitalization of stock

exchange and GDP growth. The capitalization is correlated with GDP growth and GDP depends on activity (optimism) of companies. The capitalization depends also on activity (optimism) of investors. The analysis of correlation coefficients in our research reveals that waves of IPO are correlated with market condition rather than capital demand.

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