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Stock markets and industry growth: an eastern European perspective

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Abstract

This paper reviews recent stock market developments in Poland and the Czech Republic and provides a case-study of the direction of causality between stock market expansion and economic growth. It finds no evidence that the relative failure of the security market in the Czech Republic affected the country's economy. It also analyses the composition of Polish private equity offerings and finds that industries traditionally considered financially dependent were not among the largest Polish equity issuers. Instead, the growth of the Polish equity market has been driven by otherwise well-performing industries, such as residential building and commercial banking

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INTRODUCTION

Substantial economic literature, dating back to Bagehot (1873) and Schumpeter (1911), has emphasised the importance of the financial system on economic growth. Although the direction of the causal relationship between the development of a country's financial sector and its growth rate has been frequently questioned (Robinson, 1952) or regarded as unimportant (Lucas, 1988), recent empirical research seems to have tipped the balance of evidence towards the belief that well developed financial systems stimulate economic growth.[1]

While the literature historically focused on banking, there is an expanding interest in the impact of stock markets on economic growth. Levine (1991) and Bencivenga et al. (1995) propose models in which more liquid markets stimulate long-term investment and economic growth through lower trading costs. Shleifer and Vishny (1986) and Bhide (1993) argue, however, that high liquidity may weaken monitoring efforts, thus impeding effective resource allocation and slowing economic growth. On the empirical side, Levine and Zervos (1998) find that stock market liquidity, but not size, positively predicts aggregate growth, whereas Rajan and Zingales (1998) establish that stock market size is related to growth of financially dependant industries.

This paper provides a case-study-based insight into the direction of causality between stock market development and growth. It investigates the impact of the failure of the Czech stock exchange and the success of its Polish counterpart on different industries. The historical situation in hand offers a unique opportunity for a comparative study, as the two countries have enjoyed similar progress in economic transition and reforms, with one substantial difference being the development of security markets. The paper finds no evidence that the failure of the Czech security market disadvantaged the country's industries.

The paper also analyses the composition of Polish private equity offerings. The rapid market-oriented reforms of the early 1990s overturned the economic order in Poland, thus breaking the majority of the business relationships and providing an 'equal-start' to all market participants. The paper does not find industries traditionally considered financially dependent to be among the largest Polish equity issuers.[2] It also reports evidence of the industry-based determinants of growth of the Polish stock market.

The paper is organised as follows. Section 1 briefly describes the general conditions of the Polish and Czech economies and financial systems. Section 2 compares the relative performance of Polish and Czech industries to establish the impact of the failure of the Czech stock market on industry growth. Section 3 identifies the major private equity issuers and provides their characteristics. The paper concludes with a short discussion of the results.

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[1] See, for example, Demirguc-Kunt and Maksimovic (1996), Jayaratne and Strahan (1996), Levine and Zervos (1998) and Rajan and Zingales (1998).

[2] See Rajan and Zingales (1998) for analysis of financial dependence of different industries.

1. GENERAL CONDITIONS

Poland and the Czech Republic share similar histories over the past century. Both countries regained independence after World War I and both turned to communism and became Soviet satellites after World War II. With the disintegration of the communist economic alliance between 1989 and 1991, Poland and the Czech Republic lost their traditional socialist markets, but at the same time gained a chance for profound and sustained economic reform. Signs of economic resurgence began to appear in the wake of shock therapies applied by both nations in the early 1990s.

At the beginning of the market-oriented reforms, Poland had a population of 38 million, compared to 10.3 million in the Czech Republic. The 1989 per capita incomes in constant 1995 U.S. dollar terms were US$ 3,045 and US$ 5,727, respectively. Both countries were fully industrialised, with industry structures dominated by large plants, usually producing lowly specialised output of uncompetitive quality. The economic reforms introduced in Poland and in the Czech Republic removed price controls, eliminated most subsidies, opened markets to international competition, and imposed strict budgetary and monetary discipline. Both countries soon undertook ambitious privatisation programmes, with Poland originally choosing a case-by-case approach and the Czech Republic opting for mass privatisation.

Despite the above similarities, the Czech and Polish economies differed in some areas during the first years of transition. The ruling politicians in the Czech Republic appeared to favour strict free market principles, whereas their Polish counterparts leaned more towards limited administrative regulation and control. The prime example of this difference in attitudes is given by the organisation and development of the stock exchanges in both countries. Gleaser, Johnson and Shleifer (2001) argue that the apparent success of the Polish security market and the relative failure of the Czech stock exchange are due to the much stronger law enforcement of the powerful regulatory authority in Poland, as compared to its Czech counterpart. They claim that lack of control of the Czech management class led to high expropriation of minority shareholders and resulted in mistrust and failure of the stock exchange as a source of investment capital. Coffee (1999) points out better disclosure standards, ownership transparency and takeover regulations, as possible reasons for the success of the Warsaw Stock Exchange. Other authors (e.g., Aussenegg 1999) highlight the beneficial impact of the successful case-by-case privatisation in Poland on the popularity of the security exchange, in contrast to the failed Czech voucher mass privatisation, which resulted in common mistrust of stock market institutions.

The relative advantage of the Polish security market is illustrated by comparing the capitalisation of both stock exchanges in Table 1. The table shows the capitalisation (in millions of US dollars at end of year) of the Warsaw and the Prague Stock Exchanges, along with the number of stocks listed and new equity raised through initial public offerings (IPOs) and seasonal public offerings (SPOs) by domestic companies.

Because of rapid mass privatisation, the initial capitalisation of the Prague Stock Exchange exceeded that of the Warsaw market. Nevertheless, the unfavourable financial conditions of some of the listed Czech firms led to a regular drop after 1996, both in the number of traded stocks and in their total value. In contrast, the Warsaw Stock Exchange showed steady growth both in total capitalisation and in the number of firms quoted. In fact, in 2000 its capitalisation exceeded this of the Vienna Stock Exchange, which used to be a leading central European market in the 1990s.

Table 1: Stock markets in Poland and the Czech Republic

Year	Poland					Czech Republic				
	Market Cap.	Market Cap./ GDP	No. of issues listed	Capital raised (SPOs)	Capital raised (IPOs)	Market Cap.	Market Cap./ GDP	No. of issues listed	Capital raised (SPOs)	Capital raised (IPOs)
1991	144	0.19%	9							
1992	222	0.26%	16							
1993	2,706	3.15%	22							
1994	3,057	3.30%	44			5,938	14.90%	1,024		
1995	4,546	3.84%	65			15,664	30.80%	1,698		
1996	8,390	6.26%	83	319.0	67.5	18,077	32.00%	1,628	0	
1997	12,135	8.95%	143	547.4	438.6	12,786	24.60%	320	0	0
1998	20,461	14.10%	218	818.6	438.6	12,045	24.20%	283	0	0
1999	29,577	19.36%	221	255.2	110.9	10,583	21.26%	181	47.4	0
2000	31,429	19.96%	225	651.0	4.4	9,746	19.58%	142	252.5	0

Note: Market capitalisation and capital raised are denominated in US$ million. SPO refers to secondary public offerings, i.e. equity issued and sold by companies already listed on the market. IPO refers to initial public offerings, i.e. equity issued by companies entering the stock market.

Source: International Federation of Stock Exchanges (FIBV), www.fibv.com; Gleaser, Johnson, Shleifer (2001) and the Czech Stock Exchange.

The failure of the stock exchange in the Czech Republic resulted in the situation where firms lost the opportunity to raise investment capital through public security offerings. Table 1 shows that until 1999 no money was raised by Czech firms on the stock exchange. Even in the last two years, the amount of investment resources obtained through the security market remained much below the Polish figures. The total amount raised on the Czech stock market in the sample period is about one-sixth the sum of initial and secondary public offerings on the Warsaw Stock Exchange in 1998 only.

2. INDUSTRY PERFORMANCE

This section analyses the impact of the development of the Polish stock upon the growth of different industries. Czech firms have been treated as the benchmark, with Polish sectors being judged by their relative performance. This attempt to control for fixed industry effects follows the logic of Jayaratne and Strahan (1996), who use differences in growth rates across temporal shocks of liberalisation when examining the impact of relaxing the banking regulations across the different states of the US. In this way, results reported in this paper control for both the country specific effects (the accessibility of capital through stock exchange appears to be the only big difference between business conditions in Poland and the Czech Republic[3]) and the industry characteristics, extracting the impact of the stock market development in a possibly clear manner.

First, it is verified whether financially dependant industries exhibit higher returns and thus growth prospects in the economy with better access to external capital. The growth prospects of an industry are measured using returns on assets obtained from the Amadeus database.[4] Table 2 compares the growth of lowly and highly financially dependent industries (Panel A), most and least issuing non-financial industries (Panel B) and listed and non-listed firms (Panel C). Following Rajan and Zingales (1998), financial dependence of corporation is defined as the reliance on external capital in financing day-to-day operations and development activities. The classification in this paper follows that of Rajan and Zingales. The least financially dependent industries are tobacco, pottery and leather producers and the most financially dependent industries are drug, plastic and computer manufacturers. The top five issuing industries are listed in Table 3 and the bottom five issuing industries are plastics and metal product manufacturing, special industry machinery and transportation, and real estate services. Table 2 reports average annual mean and median returns on total assets in the period 1994-1999. In Panels A and B, the premium is equal to the difference between values obtained for Poland and the Czech Republic. In Panel C, the premium is equal to the difference between values obtained for listed firms only and for all firms.

If the Rajan and Zingales (1998) hypothesis is to be confirmed in the case of Poland and the Czech Republic, one would expect a higher difference between returns on assets of Polish and Czech firms in the most financially dependent industries than in the least financially dependent industries. Table 2 Panel A shows, however, that this difference is similar for both groups, indicating lack of significant discrepancies in the growth prospects of sectors most and least dependent on external finance.

Table 2 Panel B repeats the analysis, measuring dependence on stock markets by the amount of capital raised on stock exchanges in Poland and in the Czech Republic. It compares the differences between growth of industries that did and did not utilise the possibility to raise capital through the stock market. The differences in returns on total assets, denoted as the premium, are small in both groups, indicating that raising capital through the stock market did not have a significant impact on industry growth perspectives.

Finally, Table 2 Panel C presents returns on total assets for the top five issuing industries, separating the listed and non-listed firms. The listed firms show better performance in Poland,

[3] This assertion is supported by similar levels of development in banking services and legal systems, comparable terms of trade and general business conditions, availability of similar workforce for similar cost, and almost identical initial conditions of the transition period in both countries.

[4] The data are denominated in US dollars.

with no significant differences in the Czech Republic. Thus, it appears that the positive impact of the development of the Warsaw Stock Exchange, if any, is limited to the listed firms.[5]

Table 2: Financial dependence and growth

Panel A: Financial dependence and growth

	Least financially dependent industries			Most financially dependent industries		
Return on total assets	**Czech Rep.**	**Poland**	**Premium**	**Czech Rep.**	**Poland**	**Premium**
Mean firm	-0.88%	7.18%	8.06%	2.21%	10.6%	8.37%
Median firm	0.31%	7.05%	6.74%	2.42%	10.2%	7.74%

Panel B: Equity issues and growth

	Five largest equity issuing industries			Five smallest equity issuing industries		
Return on total assets	**Czech Rep.**	**Poland**	**Premium**	**Czech Rep.**	**Poland**	**Premium**
Mean firm	1.99%	11.88%	9.90%	0.33%	9.57%	9.23%
Median firm	1.37%	8.80%	7.44%	0.42%	5.52%	5.10%

Panel C: Stock market enlisting and growth

	Poland			Czech Republic		
Return on total assets	**Quoted**	**All**	**Premium**	**Quoted**	**All**	**Premium**
Mean firm	13.97%	11.88%	2.09%	-0.71%	1.99%	-2.70%
Median firm	12.45%	8.80%	3.65%	1.62%	1.37%	0.25%

Source: Amadeus database.

[5] Due to the small sample size and diverse profitability of analysed firms, none of the differences is statistically significant. Nevertheless, subject to the limitations of data, the sample seems to offer a good indication of differences in economic performance between groups of companies.

3. PRIVATE SECURITY OFFERINGS ON THE POLISH STOCK MARKET

This section investigates which Polish firms utilised the possibility to raise capital on the stock exchange. The sample covers 126 initial and 38 seasonal successful private public offerings on the Warsaw Stock Exchange. It excludes government privatisation sales, which generally do not raise capital for the sold firms, but rather increase the state budget income. The data also leave out issues by de-listed firms and by firms which do not have fully available accounting data.[6] The amounts denominated in Polish zlotys have been converted to US dollars using the same day exchange rate from the Polish interbank market.[7] Although the sample is far from complete, it appears to be free from systematic biases and thus seems to represent relatively well the cross-section of firms that issued new securities on the Warsaw Stock Exchange in the period 1994-2001.[8]

Total proceeds from equity issues in the sample period reach almost US$ 2 billion, with an average issue of US$ 11.23 million. The secondary public offerings (SPOs) are generally larger than the initial public offerings (IPOs). An average equity issue is equal to about a third of the pre-issue value of the company, accounting for 29.45 per cent of the post-issue shares of the firm. The largest volume of equity was issued in 1997 and 1998. The size of the average SPO is consistently higher (except in 2000) than the volume of an average SPO.

Rapid economic transition resulted in breaking the majority of the pre-1990 business contacts, with many new banks and institutional investors appearing on the market. Generally, few of the old-time business relationships survived, creating a unique situation on the financial market, where firms were not limited by long-term contracts with commercial banks and they could not benefit from old relationships. In such a situation, firms in the highest need of external capital, such as drug, plastic and computer manufacturers, are expected to be relatively well represented in the issuing group.[9]

However, our sample shows that none of these firms are among the top 10 participants on the Polish market. More than 25 per cent of the equity offerings fall into residential building contracting (21), commercial banks (14) and computer programming and related services (8) industries, with the first sector being responsible for about 10 per cent of IPOs and the second accounting for about 33 per cent of SPOs.

Table 3 lists ten industries with the largest volume of equity offerings in the sample. The classification is given separately for initial (IPO), seasonal (SPO) and all (Total) public offerings. The sample is divided into industries following the US-SIC three digits code. Firms are assigned to industries following the Amadeus data base description. If a firm is not included in the data set, the industry code is matched to the description of the main activities of the firm.

[6] The dataset is collected from individual companies' financial statements obtained from www.interia.com.pl.
[7] The relevant data have been obtained from www.parkiet.com.pl.
[8] The data sets cover about 50 per cent of all private equity offerings on the Warsaw Stock Exchange.
[9] Analysing the US data, Rajan and Zingales (1998) point to drug, plastic and computer manufacturers as potentially the largest issuers.

Table 3: Volume of equity offerings by industries

	Total		IPO		SPO	
	Value	%	Value	%	Value	%
Commercial banks	331.55	18.00	34.87	3.29	296.68	37.94
General building contractors (residential)	131.84	7.16	58.48	5.52	73.36	9.38
Newspapers publishing and/or printing	105.66	5.74	94.28	8.90	11.38	1.46
Services allied with securities or commodities exchange	89.78	4.88	35.89	3.39	53.89	6.89
Computer programming and computer related services	86.61	4.70	84.61	7.98	-	-
Beverages	79.06	4.29	6.19	0.58	72.87	9.32
Drugs, drug products and drug' sundries wholesale	72.86	3.96	49.61	4.68	23.25	2.97
Miscellaneous equipment rental and leasing	71.00	3.86	71.00	6.70	-	-
Household appliances	55.48	3.01	55.48	5.24	-	-
Telephone communications	55.03	2.99	55.03	5.19	-	-

Source: Warsaw stock exchange.

To a large extent, Table 3 confirms the earlier notion of construction and commercial banks being the leading issuers. It additionally points out high shares of the raised capital going to newspaper publishing and financial services allied with the stock exchange. Computer programming and related services account for only 4.7 per cent of the raised capital. The SPO is dominated by a few large issues from commercial banks, with more uniform distribution of capital among the participating industries in the IPO sector.

4. DISCUSSION

In summary, it appears that the major equity issuers on the Polish stock market are not the firms traditionally regarded as highly dependent on external capital. Instead, the new issues are dominated by construction firms and commercial banks, which represent two dynamically developing sectors of the Polish economy. This suggests that growing firms dominate the stock market and contribute to its development. The determinants of prosperity in construction and commercial banking are exogenous to the stock market, whereas the growth of the stock exchange seems to depend, at least initially, on the capital raising activities in the two above mentioned industries.

These results do not necessarily contradict the existing theory. It might be the case that the development of the still young Warsaw Stock Exchange will trigger the growth of financially dependent industries in the near future. Signs of such process are given by the popularity of the newly open SiTech sector of the stock market, designed especially for ‘new-technology’ businesses, such as computer programming and related services.

Nevertheless, the evidence from the Polish stock market provides an important insight into the causality between the development of the stock exchange and the growth of financially dependent industries. The recent opening of the relatively less regulated SiTech sector has attracted a large number of ‘new technology’ firms to the stock market, thus creating new financing opportunities and boosting growth of the industry. However, the Warsaw Stock Exchange decided to open its new sector only after some of the country’s largest computer firms started to look for funding on other European stock exchanges.[10] Hence, originally the move was to prevent the outflow of domestic firms to foreign markets and, in this way, was just a response to the existing market demand. Based on similar logic, a few years earlier, the Warsaw Stock Exchange opened a derivative market, only after options on some major Polish firms started to be traded in Vienna.

Far from providing proof of the causality from economic growth to financial development, the eastern European evidence suggests a much higher degree of inter-dependence between growth and finance than has been suggested by some of the recent empirical literature. The argument is strengthened by the fact that the two spectacular steps in the growth of the Warsaw Stock Exchange, opening the SiTech and the derivative segments, were responses to companies’ demand, rather than the active creation of new investment possibilities.

The analysis in this paper of the industries’ growth perspectives shows no evidence of faster development of financially dependent industries in Poland than in the Czech Republic. Nevertheless, the listed firms show much better performance in Poland than in the Czech Republic and they generally outperform their non-listed counterparts. These results suggest, first, that the positive impact of the development of the Warsaw Stock Exchange is by now limited to the quoted firms, and second, that the apparent failure of the Czech security market has not yet caused any significant disadvantage to industries.

[10] One of the first such issues has been undertaken by Prokom Software, one of Poland’s largest software manufacturers.

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