MASTERS RESEARCH PAPER:

PATTERNS OF PORTFOLIO EQUITY INFLOWS IN CEE AND NIS: APPRAISING THE EMPIRICAL EVIDENCE

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ABSTRACT

This paper tests a theory of patterns of portfolio equity investments against the empirical evidence of CEE/NIS emerging and frontier markets. The theory used is based on the model of Zhaohui Chen and Mohsin Khan that explains patterns of capital flow in terms of growth potential and financial market development. Low availability of data does not allow for an elaborate econometric test; instead a simple analysis of stylized facts is used. Though shown to be supportive for some hypotheses, the CEE/NIS empirical evidence does not yield conclusive results. Yet, the available evidence suggests that Ukraine's pre-emerging market is currently at a quite fragile state, being vulnerable to drastic reversals of capital flows. Therefore, Ukrainian policy makers are advised to devote more efforts to local stock market development.

INTRODUCTION

Just a decade ago, emerging stock markets were too small and insignificant (as well as too innumerous) to attract the attention of international investors and academics. Yet, according to IFC data, their capitalization has increased more than ten-fold over the past decade, from US$332 billion in late 1987 to over US$2.2 trillion in late 1997, while the number of domestic companies in their listings more than doubled for the same period (from almost 11,300 to over 23,000)[1].

That rapidness of change is more so with regard to stock markets of Central & Eastern Europe (CEE) and Newly Independent States (NIS), where still many are about to 'emerge'. Just a few years ago, one could have hardly gone beyond Poland, Czech Republic and Hungary in naming emerging markets of the region. Today, the number of markets within investors' scope exceeds a dozen. By the end of 1996, total CEE & NIS market capitalization was below US$80 billion, less than 3% of global emerging market value[2]. By the end of 1997, the region's market capitalization (as Daiwa Europe Ltd. estimates, see Graph 1 in appendix) exceeded US$190 billion or over 8% of emerging markets universe, owing to growth in breadth (new companies in listings as well as new markets) and depth (rise in market values of already listed stocks).

There is significant evidence suggesting a high reliance of companies in emerging markets on stock markets as a financing source[3]. On the supply side, bank loans are hardly available to many local companies due to fragile domestic banking systems that are reluctant

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[1] Sources: *Emerging Stock Markets Factbook 1997*, IFC, 1997, pp. 17, 23; author's estimates.
[2] Daiwa Europe Ltd., "Central and Eastern Europe: New Lands of Promise", *Equity Strategy Quarterly*, September 1997, p. 4.

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to provide long term financing. On the demand side, domestic enterprises need considerable funds to finance their much-needed restructuring. It should be also noted that local companies rely mostly on equity financing rather than borrowing via fixed-income securities (e.g. bonds). One possible reason could be that local markets are not sophisticated enough to allow for that sort of financing. Another reason could be that typically very high yields of domestic government debt instruments would dictate very high costs of debt financing for corporate entities. Therefore, the stock market is perceived as a superior financing source[4]. Hence, the benefits of a more liquid and price-efficient domestic stock market for local companies (in terms of lower cost of financing) are not negligible.

Foreign portfolio investment is crucial in propelling growth of emerging stock markets and having "catalytic effects" on development of those markets:

> They help to put countries "on the map" for emerging market investors, and increase the amount and quality of research on these markets. And by improving the price-earnings ratios, liquidity, and pricing efficiency of domestic markets, they improve firms' access to all equity capital in emerging markets - critical for business growth in developing economies[5].

On the supply-side, foreign institutional investors seek greater diversification for their portfolios that provides additional incentive to invest in emerging markets. According to the IMF, if institutional investors were to reallocate just 1% of their over US$20 trillion assets, that would translate in a capital inflow of US$200 bn[6] (compared with US$256 bn of '97 net private capital flows to developing countries). The World Bank estimates that "institutional investors can continue to increase expected returns and reduce overall risks until the share of

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[3] See **Singh, Ajit**, "Corporate Financial Patterns in Industrializing Economies: A Comparative International Study", *IFC Technical Paper 2*, IFC, Washington, DC, 1995.

[4] Another financing option for an emerging market company is to enter foreign stock markets (e.g. through ADR/GDR programs). Yet, there are significant barriers for entry.

[5] **Barger, Teresa, Carter, Laurence, Kuczynski, Irving**, "Portfolio Investment Funds - Assessing the Impact on Emerging Markets", *Public Policy for the Private Sector*, Note No. 89, IFC, p. 4.

[6] *International Capital Markets: Developments, Prospects, and Key Policy Issues*, IMF, November 1997, p. 27.

their portfolios allocated to emerging markets reaches a level that is three times as high as it is today"[7].

In this respect, an important institutional development has been the growth of dedicated emerging market hedge funds, as the World Bank recognizes[8]. By virtue of having few regulatory constraints yet enjoying wide flexibility in investments, they appear to be prominent players in the realm of emerging markets. Their number has expanded from 5 (with assets of less than US$0.7 billion) in 1992 to 57 (with assets of over US$7 billion) in 1997[9]. Though that looks negligible versus over US$2 trillion market cap of all emerging markets, one should note that those institutional investors tend to be first-movers who risk entering very exotic/frontier markets. For instance, 25 of those 57 hedge funds, with US$2.3 bn in assets, have made bets on the transition economies of Europe and the FSU[10].

Due to its frontier status, Ukraine has yet to reap the benefits of foreign portfolio inflows. Nevertheless, by understanding key variables affecting the patterns of those inflows in similar settings (i.e. CEE and other NIS), Ukrainian policy-makers would be able to speed up the process by taking a pro-active role. The latter, for instance, could translate in fostering necessary market institutions e.g. disclosure rules, protection of minority shareholders, nurturing of domestic institutional investor base.

The choice of "Patterns of Portfolio Equity Inflows in CEE and NIS: Appraising the Empirical Evidence" as a topic for research is intended to:

- test a theory that explains portfolio equity inflows in terms of financial market

development and growth potential against stylized facts. Specifically, I will attempt to test

the following three hypotheses: 1) proposition on distribution of capital flows identifying

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[7] *Private Capital Flows to Developing Countries: The Road to Financial Integration*, World Bank, 1997 in ibid., p. 27.
[8] *Global Development Finance 1998: analysis and summary tables*, World Bank, 1998, p. 17.
[9] Ibid., p. 17.
[10] Ibid., p. 17.

which markets are going to be first in attracting portfolio capital inflows; 2) proposition on competition effect of low interest rate which evaluates the impact of international interest rates on capital flows; 3) proposition on 'fatal attractions' which identifies which markets are the most vulnerable to drastic reversals of capital flows.

- use the results to suggest policy recommendations for Ukraine's stock market development.

The paper is organized in the following way: after this introduction, the section called 'Theoretical Framework' will recap theoretical basis for the study which is the model of patterns of capital flows to emerging markets developed by Zhaohui Chen and Mohsin S. Khan; subsequent section ('Approach. Methodology. Data.') stipulates the way the theoretical hypotheses will be tested; 'Empirical Regularities' describes empirical evidence against the suggested theory, while 'Conclusions and Policy Recommendations' will summarize my findings as well as conclude the paper with policy implications geared specifically to Ukraine.

THEORETICAL FRAMEWORK

In their paper *"Patterns of Capital Flows to Emerging Markets: A Theoretical Perspective"* Zhaohui Chen and Mohsin S. Khan provide the basic theoretical framework within which one can study the patterns of capital inflows to emerging markets. Their theory focuses on "how the expected excess returns of investing in an emerging market affects foreign investors' decisions"[11]. Here and throughout the text, "returns of investing" are interpreted in traditional way, i.e. stock price appreciation plus dividend yield.

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[11] **Chen, Zhaohui, Khan, Mohsin S.**, "Patterns of Capital Flows to Emerging Markets: A Theoretical Perspective", *IMF Working Paper WP/97/13*, January 1997, p. 4.

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Chen and Khan developed their theoretical model in a simplified two-country setting where one country is 'the reference economy' (i.e. source of foreign portfolio investment). The foreign portfolio equity investment is assumed to be small relative to the host country's stock market so that it does not disturb the market price[12]. Another key assumption is that of information asymmetry between outside investors and insiders. As Chen and Khan also recognize, such information asymmetry is very much typical for an emerging market "where information is not properly disclosed and processed due to weak, or even nonexistent, accounting and disclosure rules and primitive market infrastructure"[13]. For most of CEE and NIS markets that statement is especially true – their level of financial market development lags considerably even behind that of Latin American and Asian emerging markets. To capture the market inefficiency, Chen and Khan use the notion of 'investment trap' parameter $r*$, which is proportional to the information asymmetry and implies that inefficient investment decisions are pursued[14]. Though a project has negative return, given information asymmetry, a firm may choose to invest (case of over-investment) or another possibility is when a positive-return project is deprived of investment (case of under-investment). So, the investment trap represents those over- and under-investments.

Using the normal distribution as an approximation for the actual distribution of investment opportunities, they interpret the mean (μ) as the economy's growth potential. It also "represents the average natural rate of return to investments in the economy"[15]. Given those assumptions, the expected return for an emerging market conditional on imperfect financial market ($r*>0$) is represented by:

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[12] It seems to be a rather strong assumption when applied for such thin markets as many of CEE & NIS countries are (even when looked from the standpoint of an individual investor).
[13] Ibid., p. 5.
[14] Ibid., p. 22.
[15] Ibid., p. 24.

$$E[r \mid r_{em}^*] = \frac{f(\frac{r^*-m}{s}) + f(\frac{-r^*-m}{s}) - f(\frac{-m}{s})}{1 + \Phi(\frac{-m}{s}) - \Phi(\frac{r^*-m}{s}) - \Phi(\frac{-r^*-m}{s})}$$

where:
$f(\cdot)$ is probability density function of the standard normal distribution;
$\hat{O}(\cdot)$ is cumulative density function of the standard normal distribution[16];
em subscript denotes 'emerging market' (and I will use *w* subscript to denote 'western' economy).

In words, this equation algebraically represents average return over two areas of the return distribution: one of over-investment (projects with negative returns which nevertheless gained investment) plus area of positive-return projects excluding those under-invested.

Though their model allows for many possibilities[17], for purposes of this study I narrow my scope to the case of a 'western' economy as a reference (or source) country which can be proxied by zero potential return and a perfect financial market (i.e. both parameters are set to zero)[18]. Since the emerging market premium (discount) for that case could be defined simply as $E[r/r^*_{em}] - E[r/r^*_w]$ i.e. the difference between expected returns, we are going to get the pattern illustrated in Figure 1. For that case, Chen and Khan formulated the following testable proposition (called 'distribution of capital flows'):

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[16] Here the notation of Chen and Khan is left mostly unchanged (except for subscript) which omits country subscripts on the RHS of equation for simplicity (see Chen & Khan, p. 24).

[17] Another possibility could be the case of intraregional flows which would include equity investment from more developed emerging market to a less developed one. Their model also allows for explaining non-portfolio equity flows (e.g. FDI or debt).

[18] For a perfect 'western' market (i.e. $r_w^*=0$), the expected return is defined as: $E[r \mid r_w^*] = \dfrac{f(\frac{-m}{s})}{1 - \Phi(\frac{-m}{s})}$ (see

Chen and Khan, p. 24) i.e. average return over all positive-return projects.

The economies that are able to attract portfolio equity flows from 'western' countries exhibit a suitable configuration of the growth potential and the financial market inefficiency. Both parameters should be high enough, with the positive effect of growth outweighing the effect of the inefficient market. Further, the attractiveness of these economies to 'western' equity portfolio investors tends to diminish if the dominance of the growth parameter becomes too extreme[19].

FIGURE 1: EMERGING MARKET PREMIUM OVER THE 'WESTERN' MARKET.
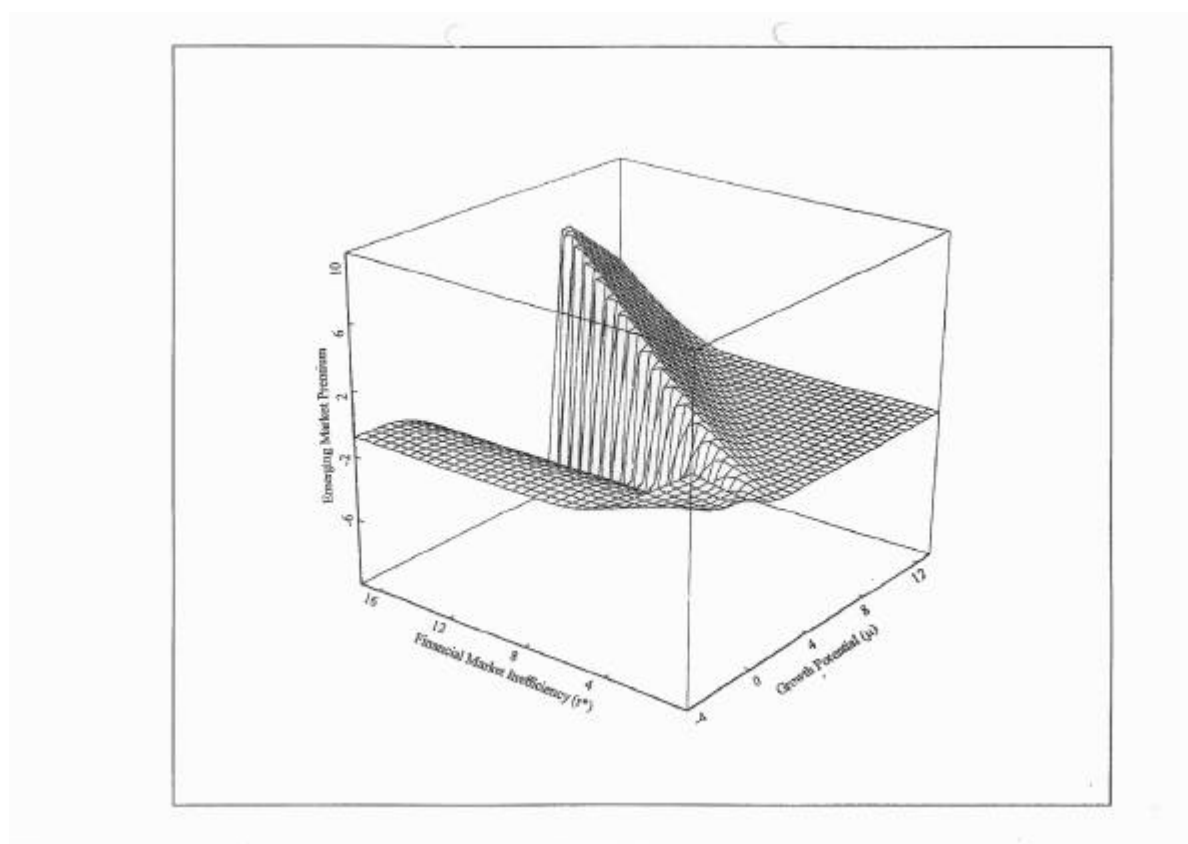
Source: Chen & Khan (1997), p. 27.

Their model also incorporates the sensitivity of portfolio flows to the world interest rate which is used by a foreign portfolio investor from the 'western' economy as the reference return. Only markets with growth-financial development configurations promising higher returns attract foreign investment. As the interest rate falls, more economies become eligible,

[19] Ibid., p. 28.

tending to be either ones with high growth and relatively efficient markets or economies with

low degree of financial development but expected very high growth profile[20]. Yet, an interest

rate cut has also a push impact, forcing more foreign investors from more economies to seek

higher return opportunities outside their domestic markets. In that respect, Chen and Khan

phrase the following hypothesis (named 'competition effect of low interest rate'):

> An interest rate cut in the 'west' increases the supply of capital to the rest of the world, and leads to more developing economies competing for funds from the 'west'. The newly-emerging competitors include countries with high growth potentials and relatively efficient markets, and countries with very high growth potentials and relatively inefficient financial markets[21].

Chen and Khan also discern a special type of emerging markets (those on the upper

hills of the 'valley' in Fig. 1) with a moderate growth potential and semi-developed financial

market which tend to be vulnerable to drastic reversals of capital flows. They hypothesize that

for such markets "a slight change in the market perception about the economy and its financial

market may lead to catastrophic changes"[22] ('fatal attraction' proposition).

The model developed by Chen and Khan seems to be consistent with salient trends in

emerging market developments identified by IFC's *Emerging Stock Markets Factbook 1997*.

It lists the following motivations behind portfolio inflows: a) interest in emerging markets as

relatively high-growth economies; b) perception of decreasing risk (e.g. due to greater opening

of local financial markets); c) interest in emerging markets as a means of diversifying

opportunities at relatively attractive valuations; d) greater access to emerging market stocks[23].

The first motivation is essentially captured by Chen-Khan's 'growth potential' parameter,

while the second reason is related to 'investment trap' parameter (information asymmetry is

going to be proportional to risk). However, the Chen-Khan model does not address

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[20] Ibid., p. 28.
[21] Ibid., p. 28.
[22] Ibid., p. 29.
[23] *Emerging Stock Markets Factbook 1997*, IFC, 1997, pp. 10-11.

diversification motive (at least explicitly). Besides, their model assumes accessibility of stocks as given.

In any case, that theory needs a more rigorous test. Three testable hypotheses were derived from Chen-Khan model: 1) emerging markets, which are first to attract 'western' capital inflow, are those with high (though not extreme) growth potential and quite high market inefficiency; 2) a lower 'western' interest rate increases the supply of capital available for investing in emerging markets, while more emerging markets start competing for 'western' money; 3) economies with moderate growth-market development profile are going to be vulnerable to drastic reversals of capital flows. But before turning to empirical work, we need to clarify methodological issues and decide on suitable approach.

APPROACH. METHODOLOGY. DATA.

The intended approach is to use cross-sectional study over CEE and NIS countries in a stylized fact manner by employing simple graphical analysis. To date, an elaborate econometric study of the topic seems very problematic due to very restrictive data. A major detriment is getting a satisfactory number of degrees of freedom due to short history of CEE and NIS markets (pooled data technique will not solve the problem). My study will cover 1995-1997 period, which appeared to be the most intensive in the raise of regional stock markets to date. The spatial coverage includes 25 CEE/NIS countries (Yugoslavia excluded).

The focus on countries of a single region that share a common background (e.g. communist past), similar structural features (bias to heavy industry, underdeveloped consumer-oriented sectors etc.) and are located in proximity to each other, would allow for control for effect of other variables that may contribute to interregional differences in capital flows. For instance, within CEE and NIS the intraregional equity flows do not seem to be as

significant as in other regions (e.g. East Asia, Latin America) probably due to the comparatively recent nature of those markets[24]. Given our focus on foreign equity investments originating in a 'western' country, as well as unavailability of data on sources of capital inflow, the restriction to that single area would control for that influence.

The variable to be explained is the ratio of portfolio equity investment to market capitalization. The reason for dividing the amount of capital inflow by the capitalization of a recipient market is to have standardized measures which account for differences in sizes of stock markets (for instance, compare Russia and Romania). On the one hand, ceteris paribus, a larger-capitalized market allows for more investment inflow; on the other hand, a US\$ 1 bn annual inflow into smaller-capitalized market (say less than US\$5 bn) would have a much more visible impact than the same amount flowing into a market capitalized at over US\$ 100 bn.

As the World Bank recognizes, data on portfolio equity investments are the most difficult to get[25]. Yet, in its *Global Development Finance 1998*, it came up with data on net portfolio equity flows covering all 26 countries of the region for 1992(93)-1996 period. I will also use the IMF's *International Financial Statistics* but mainly as a data source on portfolio equity outflows from 'western' economies (e.g. USA and UK). In getting market cap data, I will also rely on multilaterals' data (i.e. IFC), while the gaps of the former will be filled by data reported by Western investment banks (mostly Daiwa, Flemings, ING Barings).

Prior to testing the suggested theoretical propositions, we need to decide on how growth potential, financial market development and emerging market discount (premium) will be measured/captured.

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[24] That hypothesis is based on anecdotal evidence only due to restrictive nature of the respective data.
[25] World Bank (1998), p. 9.

Measuring growth potential: In his article "*Stock Returns, Expected Returns, and Real Activity*", Eugene F. Fama justifies the use of future growth rates of real activity (measured either by industrial production, real GNP or gross private investment) to account for expectations of future cash flows (i.e. growth potential). The impact of the latter rests on definition of the market value of a firm as present value of future cash flows it generates.

There seems to be an exogeneity problem in the stock prices-real activity relationship. One possibility is that stock prices and real activity can have one way response to other variables. For instance, a fall in interest rates induces an increase in stock prices, as well as favoring production growth via greater investment. Another possibility is that stock returns, by creating wealth effects, can affect production from the demand-side[26]. However, given our approach of empirical stylization, that problem will not be addressed in this paper (Fama himself did not dare to face that "formidable challenge" as he described it).

Fama also gives a good reason for choosing longer horizon data (yearly) to study the effect of real economic activity on the stock market:

> …information about the production of a given period is spread over many previous periods and so affect the stock returns of many previous periods. A given short-horizon return then has information about the production growth rates of many future periods, but adjacent returns have additional information about the same production growth rates. As a result, regressions of long-horizon returns on future production growth rates…give a better picture of the cumulative information about production in returns[27].

Given the above arguments, as well as data availability constraint, I will stick with annual change of real GDP as a measure for 'growth potential'. However, it is still left to define how far in the future one should look. Since emerging markets entail high risks (especially those of CEE and NIS), expectations of the future are going to be heavily

[26] **Fama, Eugene F.**, "Stock Returns, Expected Returns, and Real Activity", *The Journal of Finance*, Vol. XLV, No. 4, September 1990, p. 1092.
[27] Ibid., p. 1094.

discounted. Therefore, expectations beyond one year would have little impact[28]. The major source of data on expected real GDP growth is *Central European Economic Review (CEER)*, a Dow Jones's publication, which compiles forecasts for 26 countries of the region once a year. Those forecasts are averages of those reported by ten analysts, representatives of specialized research institutions[29].

Measuring financial market development: Chen and Khan suggest measuring the degree of asymmetric information by the ratio of deviation (absolute value) of the market valuation from the true firm value to the market price or by expected value of such deviation. In practice, such a deviation is hardly measurable directly due to practical difficulty in determining what 'true' firm value is. Instead, one may choose the standard deviations of stock price movements against the assumption that over the long run they will tend to gravitate to the firm's true value. Empirically, we very frequently find greater stock price volatility in emerging markets (i.e. higher standard deviations) which is consistent with proposition of Chen and Khan (see Graph 2 in appendix).

Alternatively, one may also use bid-ask spreads as a proxy for that deviation. Wider spreads typically found in emerging markets vis-à-vis mature ones tend to reflect that uncertainty about the firm's true value. For illustration, an average bid-ask spread in the UK is less than 70 basis points. In the more advanced emerging markets like Brazil, Indonesia, Mexico, the Philippines and Thailand spreads are at least twice as high[30], while in Ukraine spreads of over 500 b. p. are not rare.

Additionally, an underdeveloped market imposes higher direct transaction costs (e.g. registry and custodial arrangements, brokerage fees, delays in dividend payments etc.). To

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[28] In practice, many foreign portfolio investors do not have long-term investment horizon. For instance, emerging market funds are set up for a finite period (typically 5-7 years).

[29] Those panels of analysts are dominated by representatives of major investment banks active in the region e.g. CS First Boston, Deutsche Morgan Grenfell, Creditanstalt, Daiwa, HSBC James Capel, Salomon Brothers, which are major channels of portfolio capital flows.

illustrate, total expenses of the average US equity fund are about 1.6% of assets, while expenses of the average emerging market fund absorb 2.9% of assets[31].

Though stock price volatility or bid-ask spreads seem to be preferable proxies for financial market development, that data is not easily obtainable for most of frontier (i.e. pre-emerging) markets. Instead I will use the subjective evaluation ranks for 'ease of portfolio position' published for 26 countries once a year in *Central European Economic Review*. Though its detailed methodology was never disclosed, it is likely to measure transaction costs (direct and indirect) entailed when investing in local stocks. The procedure is the following: a panel of ten representatives of prominent research institutions studying the CEE/NIS region ascribes each country a grade on a scale of 0 to 10 (with 10 the highest score); the resulting score is the mean of grades across 10 panelists. I assume 10 grade to represent 'mature' market inefficiency, which is assumed to be zero, while 0 grade means total absence of a stock market to invest in.

Measuring the emerging market discount (premium): Basically, that discount or premium reflects the valuation motive of equity investment. In comparative valuations, most popular ratios are price-earnings ratio (PER), price-book ratio (PBR) and dividend yield (they are regularly reported by the IFC for the markets it follows). Yet, for most of frontier markets (including Ukraine), the derivation of those ratios is not as routine as in more advanced emerging markets. Firstly, low transparency and weak disclosure rules make difficult to get respective financials (frequently the time lag is quite substantial). Secondly, even when one succeeds in obtaining financial data, he/she cannot be sure about its cross-border comparability. Frequently (this is especially the case in the CIS) local accounting principles diverge significantly from those adopted in the 'west' or more mature emerging markets (IAS

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[30] World Bank (1998), p. 19.
[31] Ibid., p. 19.

or GAAP)[32]. Keeping those problems in mind, I will stick to PER (start of period) as the benchmark in measuring emerging market discount/premium. Specifically, the latter will be measured by the ratio of local market PER to 'western' PER (US and UK) minus 1. Here I should note that this measure misses differences in returns due to dividend payments that tend to be small and irregular for CEE/NIS companies (unlike those in the USA or UK). The data are sourced from the IFC and reports of investment banks (Daiwa, ING Barings).

Finally, a proxy for 'world interest rate', which is related to emerging market discount/premium variable and is a key variable in testing the second proposition of Chen-Khan model (i.e. 'competition effect of low interest rate'), should be defined. In their paper, Chen and Khan used the 30-year US Treasury bond yield as a proxy for illustrative purposes. I intend to use long-term government bond yields of the United States and the United Kingdom, apparently major origins of foreign portfolio investment in the CEE/NIS region, sourced from the IMF's *International Financial Statistics*.

Now let us look what the empirical evidence says about those three hypotheses suggested in the theoretical section.

EMPIRICAL REGULARITIES

To begin, according to the World Bank data, in 1997 developing Europe and Central Asia (which corresponds to CEE/NIS except for Turkey) attracted almost US$9 billion in portfolio equity flows, which is about its 1996 level, but a nine-fold growth since 1993. The weight of portfolio equity investment has risen from 1% of 1992 private flows (US$18 bn) to 21% of 1997 private flows (US$41 bn) as the number of newly emerged stock markets

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[32] Most significant divergences include cash-based vs. accruals based accounting, the way of adjusting for inflation, depreciation allowances and treatment of social expenses.

expanded. Yet, the allocation of those resources apparently has not been uniform across the region.

To facilitate the analysis of empirical evidence, I classify CEE/NIS markets into groups according to two criteria – growth potential and financial market development. Those groupings are presented below. In graph 3 (see appendix), the data plot indicates quite clearly three groupings along the market development dimension. On the right-hand side, Hungary, Poland and Czech Republic form an outlier group of relatively developed markets (8.5-8.9 grade range). On the left-hand side, there are numerous markets with less than 4.0 degree of market development that effectively had no stock markets during 1995-96 period (0.6-3.2 range). Lacking markets, those countries are essentially blind spots for foreign portfolio investors. In-between there is also quite extensive group of semi-developed markets with grades ranging from 4.0 to 6.8.

	Undeveloped market	Semi-developed	Fairly developed
High growth	**1)** <u>1995:</u> Albania Armenia <u>1996:</u> Albania Armenia Georgia Kyrgyzstan	**4)** <u>1995:</u> Estonia Slovakia Slovenia <u>1996:</u> Slovakia Romania	**7)** 1995: Poland <u>1996:</u> Poland Czech Republic
Moderate growth	**2)** <u>1995:</u> <u>1996:</u> Macedonia Uzbekistan	**5)** <u>1995:</u> Romania Lithuania Croatia Bulgaria Latvia <u>1996:</u> Estonia Croatia Slovenia Lithuania Latvia	**8)** <u>1995:</u> Czech Republic Hungary <u>1996:</u> Hungary
Low growth	**3)** <u>1995:</u>	**6)** <u>1995:</u>	**9)** <u>1995:</u>

Macedonia	Russia		
Uzbekistan			
Kyrgyzstan			
Moldova			
Georgia			
Turkmenistan			
Tajikistan			
Azerbaijan			
Belarus			
Kazakhstan			
Ukraine			
1996:	1996:	1996:	
Azerbaijan	Russia		
Moldova	Bulgaria		
Belarus			
Turkmenistan			
Kazakhstan			
Ukraine			
Tajikistan			

Grouping along the growth parameter seems less clearly defined, especially in discerning high growth from medium growth economies. Since the growth profile of emerging markets is referenced to that of 'western' economies, I will treat the average 'western' growth rates as the starting point. During 1995-96, developed economies exhibited over 2.5% annual growth rates. Therefore, when normalized for those 'western' growth rates (which are treated as low growth), a high growth emerging market should post substantially more than 2.5% growth. In my groupings of high-growth economies, I conservatively (but ad hoc) assumed 4.5% GDP growth rate as a threshold value. From the opposite side, all CEE/NIS economies with negative average growth rates were labeled 'low growth' (ranging from -1.5 to –13.3% per annum). The remaining markets represent economies with modest growth record (0.8% to 4.4% annually).

It is worth noting a regularity that arises from this grouping. A developed financial market appears to be inconsistent with a low growth transition economy (in this case with negative GDP growth) which is evidenced by empty group 9. This may indicate that growth and market development are not independent. For instance, the countries of group 1 (i.e. high

growth economies) are likely to move quickly into group 4 (and subsequently into group 7) since rewards for greater efforts for stock market development are very high in terms of portfolio equity investment. On the other hand, ceteris paribus, better market infrastructure should translate in lower cost of financing thus favoring high growth rates. Thus, over the long-run, transitional economies should gravitate to diagonal groups (3, 5 and 7). However, testing of this hypothesis requires special attention, so it will not be addressed here.

1. Testing the proposition on distribution of capital flows:

In terms of these groupings, the proposition on distribution of capital flows could be interpreted in the following way: markets falling in groups 4, 5, 7 and 8 are going to be the major attractions for 'western' investors with the former two prevailing over the latter two. When looked in absolute terms (see Graph 4 in appendix), the evidence appears to be weak (to say the least) in supporting that theoretical statement. That seems to be more so with regard to greater number of markets located into groups 4 and 5 vs. 7 and 8. When normalized by respective market capitalization (justified in the previous section), the empirical evidence seems to lend greater support to the hypothesis (see Graph 5 in appendix). However, there are a number of empirical fragments that contradict to the theory. First, the group 6 markets (Russia and Bulgaria of 1996) attracted 'too much' investment vis-a-vis what Chen-Khan model implies for them (at par with groups 4 and 7). Secondly, the dominance of groups 4 and 5 over 7 and 8 respectively (in terms of attracted foreign capital) is not strong.

Since any grouping involves a certain degree of arbitrariness (hence risk of distorting empirical evidence), let us now look at the data at the individual country level. Table 2 (see appendix) ranks CEE/NIS markets according to the level of portfolio equity investment to market capitalization. The data are given separately for two years to control for the impact of lower international interest rates (see below). Viewed in this way, the empirical evidence also seems to be inconclusive due to a number of inconsistencies. For instance, Russia, a slow

growth economy (bottomed out only in 1997) with underdeveloped stock market managed to attract significant amount of foreign capital (especially in 1996) which seems to be beyond adopted theoretical explanation. Another contradicting case is Bulgaria. First of all, the World Bank's *Global Development Finance* seems to attribute to Bulgaria a weird level of foreign portfolio capital inflow, given the country's pre-emerging market. Assuming the data are reliable enough, in 1996 this slow-growth economy with a very inefficient stock market attracted almost fifteen-fold of its market capitalization in foreign capital, which is the highest level in the region!

Given scanty comparative valuation data (PER-based) on CEE/NIS markets, attempting testing of the emerging market premiums (discounts) versus theoretically expected pattern seems very problematic. To date, the data is still too restrictive to discern any empirical regularity. Thus, inferences from the current small sample are unlikely to be robust. The available data on CEE/NIS premiums (discounts) are presented in Table 2 with the US and UK markets' PER as the benchmarks. Theoretically, one should expect group 4 countries (e.g. Slovakia, Romania'96, Slovenia'95, Estonia'95) to be foreign capital attractions even at a premium vs. mature 'western' markets. The magnitude of premiums are to decline (and turn into discounts) for group 7, 8 and 5. A significant discount for the '96 Russian market seems to be theoretically justifiable. However, the overall evidence seems to be inconclusive.

To conclude, the empirical evidence lent by CEE/NIS markets is weak to support the Chen-Khan proposition on distribution of capital inflows. However, given limited availability and imperfect quality of the data, it is premature to draw inferences about the validity of the adopted theoretical hypothesis based on the CEE/NIS evidence. To date, the latter is still not discernable enough.

2. Testing the proposition on the competition effect of low interest rate:

Stylized empirical evidence seems to be supportive to the proposition, especially when tested against US interest rates and portfolio equity flows originating in the United States (see Graph 7 in appendix). This 'western' country appears to be the first choice in such a test, due to its prominent position in the financial world (hence its impact on the international interest rate). However, in case of the UK, that inverse relationship between interest rate level and portfolio equity outflow is less clear (see Graph 8 in appendix).

On the inflow side, the interest rate movements also appear to be inversely correlated with the amounts of net portfolio equity inflows to developing countries (i. e. emerging markets[33]) as evidenced on the Graph 9 (see appendix). However, though 'western' interest rates were still on the downward trend, in 1997 the capital inflow diminished. I tend to attribute that to the global stock market turmoil in late 1997, from which emerging markets suffered the most (vis-à-vis mature 'western' markets).

Additionally, one should note that, as interest rates declined during 1994-96, the capital inflow into relatively high-risk CEE/NIS markets expanded, which is consistent with Chen-Khan's proposition. The individual country data also looks supportive (see Table 2 in appendix): in 1996 the exposure of foreign investors to CEE/NIS markets expanded in depth and breadth vs. 1995, which is more so given rapid growth of market cap during the year.

The sample, however, does not allow for testing another implication of the proposition, which is high growth/efficient markets and high growth/underdeveloped markets gain the most from falling interest rates, given the shortness of the time period. Therefore I will refrain from making any inferences from the data about this issue.

However, one should note that in the CEE/NIS case the logic of the capital supply-side was constrained by institutional developments of the recipient countries. For instance, the IFC

included Poland and Hungary (pioneers of the regional stock market development) in its coverage of emerging markets only in late 1992, Russia started attracting interest of foreign portfolio investors in 1994, while Ukraine emerged only in 1997.

Overall, the empirical evidence is supportive of Chen-Khan's proposition on international interest rates.

3. Testing the proposition on fatal attraction:

Global stock market turbulence, triggered by East Asian crisis in October 1997, provided a real life test of markets' vulnerability to reversal of capital flows[34]. The anecdotal evidence suggests that Russia and Ukraine experienced significant capital outflow from their stock markets (though in the case of the latter still not much flowed in to cause massive outflow). That seems to be supported by the performance of the local stock market indices (see Table 3 in appendix) which suggest that Ukraine, Russia and Romania suffered the most. Is it consistent with the theoretical hypothesis on 'fatal attractions'?

Out of nine groups of emerging markets defined, the 5th category (moderate growth-semi-developed markets) is theoretically suggested to be the first candidate for 'fatal attraction' label. As Chen and Khan describe "…economies that are prone to 'fatal attractions' are those that have a mediocre growth potential and a semi-developed financial market"[35].

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[33] One should make a distinction between developing countries and emerging markets. Not all developed countries are necessarily mature markets (e.g. Portugal, South Africa) and not all developing countries emerged as stock markets.

[34] For more detailed evaluation of the issue (and in broader context) one may refer to Steven Fries, Martin Raiser, Nicholas Stern, "Macroeconomic and Financial Stability: Transition and East Asian 'Contagion'", *EBRD Working Paper #27*, May 1998.

[35] **Chen, Khan**, p. 29.

Table 4 (see appendix) presents '97 economic performance of selected CEE/NIS markets as well as expectations of their growth pattern for subsequent two years. Except for Poland (and probably Hungary), all the rest are expected to exhibit moderate growth rates. Based on characteristics of stock market development (captured by CEER's rank of ease of portfolio investment), the pool of 'fatal attractions' is predicted to include Bulgaria, Romania, Russia and Ukraine[36]. Please note the correlation between financial market development and stock market performance during the crisis in late 1997 (see Graph 10 in appendix). Given that most of those markets are quite thin, the stock market performance should be very closely related with foreign investment inflow.

Independently, a recent study by Steven Fries, Martin Raiser and Nicholas Stern, all affiliated with the EBRD (see footnote), identified Estonia[37], Romania, Russia and Ukraine to have been most vulnerable to East Asian 'contagion'[38]. Their groupings (according to different criteria) also suggested that Bulgaria and Slovakia should have been also in that group[39]. Thus, the Chen-Khan's hypothesis on 'fatal attractions' seems to work well in explaining recent experience of CEE/NIS markets with East Asian contagion.

CONCLUSIONS & POLICY RECOMMENDATIONS

In this study I attempted testing of three theoretical hypothesis formulated by Chen and Khan against stylized empirical evidence of the CEE and NIS emerging (and pre-emerging) markets:

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[36] Slovakia seems to be a threshold case. Though it has moderate growth prospects for 1998-99, this market is quite developed.
[37] For Estonia I do not have enough recent data to evaluate its stance versus global stock market turmoil.
[38] **Fries, Steven, Raiser, Martin, Stern, Nicholas**, "Macroeconomic and Financial Stability: Transition and East Asian 'Contagion'", *EBRD Working Paper #27*, May 1998, p. 16.
[39] Ibid., p. 17.

1) Proposition on distribution of capital flows says that emerging markets, which are most likely to attract 'western' capital inflow, are those with high growth potential and quite high market inefficiency. The evidence from the region's markets appeared to be too weak to support that hypothesis. However, there are significant problems with measurement of portfolio equity flows (which is on the left-hand side variable), while the sample data currently available is quite restrictive. Therefore, one should wait for more data to discern empirical regularities and make any meaningful inferences.

2) Proposition on impact of low interest rate says that a lower 'western' interest rate makes more capital available for investing in emerging markets, while more emerging markets start competing for 'western' money. The aggregated data on interest rate-capital flow relationship appear to be consistent with the theoretical hypothesis. However, again the data available to date are too restrictive to test this hypothesis on the specific country level.

3) Proposition on 'fatal attraction' states that change in investors' mood about economies with moderate growth/market development profile is going to result in drastic changes in portfolio capital flow. Recent experience of the CEE/NIS emerging market with global stock market turbulence lends support to this hypothesis. Specifically, its prediction for Ukraine, Russia and Romania has been validated empirically.

Given these conclusions, what could one suggest in terms of policy geared to the frontier Ukrainian stock market?

As one can infer from the last proposition, the Ukrainian stock market is doomed to be a 'fatal attraction' by its half-developed market and mediocre growth prospects. While the latter is a long-term result of consistent growth inducing policy and thus it cannot be changed

overnight (yet investors' expectations are very responsive!), the former seems to be an obvious target for policy, since here governmental efforts could bring results fairly quickly. Currently Ukraine's market is weak with respect to disclosure rules (hence higher information asymmetry), while minority shareholder rights are poorly protected (if at all)[40]. This stock market also needs better infrastructure (reliable registrars and custody) to ensure low-cost and secured transactions. Overall, those measures should nurture corporate governance "so that outside investors in corporations can invest with confidence that they will have a voice in corporate affairs"[41].

Though hoping for positive changes coming soon, I expect Ukraine to remain in the pool of 'fatal attractions' for the next couple years. Thus, for the time being, the Ukrainian policy-makers should watch their decisions very closely to keep foreign investors pleased. With modest economic growth forecast, Ukraine may hope to move into group 8 (where Hungary is currently located) after a couple years of energetic efforts in stock market development.

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[40] Scandals with abused minority shareholders are very likely to disturb investors' perception of a 'fatal attraction' market. This was exactly the case with Ukraine and much-publicized 'Dniproshyna' case – the Company management preemptively bought out the additional issue of shares thus diluting interests of minority shareholders (including foreign institutional investors).

[41] Ibid., p. 19.