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Home bias and stock market development. The Polish experience

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Home bias and stock market development. The Polish experience

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Abstract

Pension reform has become a major policy issue for both developed and developing countries in recent years. In developing countries the impact of these reforms on the development of their financial markets is critical. However, the initial expectations that pension reforms in developing countries would bring broad benefits and result in faster market development have not materialised. A particular problem has been that governments have imposed restrictions on the freedom of pension funds' investment decisions. In particular, they have a tendency to enforce home bias in investment behaviour. This paper provides a non-technical introduction to home bias and its role in stock market development, and uses the Polish experience as a case study. It discusses the main arguments for portfolio diversification, the primary side effects that emerge from locking funds into underdeveloped equity markets, and highlights the problems the Polish pension funds face as a result of the "enforced" home bias policy of the Polish authorities. The findings support the view that enforced home bias has a negative impact on the local stock market development, on the performance of pension reform.

Keywords: pension reforms, home bias, stock market development, emerging markets
JEL Classification: G23, G28, G11

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1. Introduction

Over 40 developing countries have engaged in significant reform of their pension structures since the 1980s. In Central and Eastern Europe (CEE) and central Asia alone 14 countries have introduced voluntary and compulsory saving schemes that operate in addition to the pre-existing (often simultaneously reformed) Pay-As-You-Go (PAYGO) systems. Poland is one of the countries that have already implemented pension reforms along these lines. Under the slogan "security via diversity" the Polish authorities have restructured the existing defined-contribution PAYGO system (first pillar) and introduced two additional segments, one based on compulsory contributions (second pillar) and one based on voluntarily contributions (third pillar). To compliment the introduction of the compulsory pillar, 21 private pension funds were created and started to collect and invest money of future pensioners.[1] However, the commitment to diversification as a method of securing the efficient allocation of collected contributions did not stretch as far as one might expect. The Polish authorities have imposed restrictions on the assets that the pension funds could use in their portfolio allocation decisions and the capital markets that they are free to invest in. In particular, they have put strong limits on how much money could be invested on international markets (max 5%) and effectively have restricted the pension funds to invest on the domestic market only. In this way, diversification and, hence, security of investments have not been fully implemented. This paper is concerned with the general issue of home bias and stock market development and uses the Polish experience as a case study.[2] In the paper I discuss the main arguments for portfolio diversification, some of the main side effects that emerge from locking significant amounts of money on underdeveloped equity markets and assess some problems that can already be observed on the Polish capital market as a result of the "enforced" home bias.

Approximately 800m people, or one third of the total world labour force, are covered by publicly managed pension schemes. Of this, 80% is covered by mandatory publicly managed defined-benefits, of which nearly 50% are PAYG schemes and over 30% are

[1] Currently only 15 funds operate. The reduction in the number of operating pension funds was a part of a consolidation programme aiming to strengthen the pension market.
[2] See Zalewska (2005) for a detailed statistical analysis of the Polish experience.

partially funded schemes. The remaining contributors are covered by a mix of public and privately funded defined-benefit and defined-contribution schemes. The three-tier system (consisting of a government guaranteed PAYGO part, a compulsory scheme that obliges workers to save aside via contributions in purpose-created pension funds, and the third, a voluntary component) has been widely proposed and implemented. In particular, the World Bank has been one of the biggest and most important propagators and sponsors of the three-pillar system.

The tendency to focus on the increasing body of pensioners seems more present in middle-income countries. In 1981, with the support of the World Bank, Chile started to restructure its pension systems believing that the reforms would benefit both pensioners and economic systems.[3] Both hopes and stakes were high. Since then nine more countries in Latin America have implemented laws introducing mandatory savings, and two more have passed relevant laws necessary to implement reforms. The World Bank see pension reform as the way to fight poverty, regulate the work force, improve governments' finances, stimulate the development of financial markets and institutions and, in consequence, boost economic growth.[4] More recently the post-communist countries of Central and Eastern Europe (CEE) have stepped on to the path of pension reform. Over the last decade 14 countries started to restructure pension systems of which 10 have implemented new structures. Using the Latin American reform as a pattern, compulsory and voluntary pension schemes were created and pension funds started to operate. However, the most recent assessment of the Latin American pension reform shows rather disappointing results (e.g., Indermit, Packard and Yermo (2005)).[5] This raises serious worries whether the chosen methods are appropriate and about the future performance of pension reform.

When we consider the pension reforms in post-communist counties, the benchmark of success has an extra dimension. Pensioners' welfare and government spending were not the only anticipated beneficiaries. Pension reform and, in particular the creation of pension funds as big institutional investors, has been seen as an integral part of the

[3] The reform designers, led by Milton Friedman, are sometimes referred to as the "Chicago Boys".
[4] Averting the Old Age Crisis: Policy to Protect the Old and Promote Growth, 1994, World Bank.
[5] The World Bank report of 2005 is also critical about the success of pension reform implementation. However, the main criticism seems to concentrate on a weak penetration of the implemented schemes and insufficient coverage of old age population (The Economist, "Second thoughts on the third age", 17 February 2005)

reform of the financial system. The construction of a sound financial sector has been one of the main objectives of the transfer of economic systems from a central plan regime to a free-market. Therefore, the success of pension reform in post-communist countries is particularly crucial.

The importance of financial market development makes the CEE experience very different from the Latin America experience. When pension funds started to operate in countries like Chile or Argentina, the equity and bond markets of these countries were relatively sizable and provided some opportunity for investment. In contrast, when pension funds of the post-communist countries started to invest, their domestic equity and bond markets were still very small and highly underdeveloped. Obviously, this has brings serious limitations to the investment opportunities for pension funds in general and, in particular, on their ability to diversify portfolios.

Some common characteristics can be identified when comparing the investment practices of the pension funds operating in CEE. First, most, if not all, pension funds' monies tend to be invested at home. Second, most of the monies have been located in government bonds, and the remainder has been mostly invested in local shares. Such an allocation cannot be good for the funds and pensioners, who rightly expect a decent return on their savings. Moreover, it may not be good for the markets themselves since they are not big enough to efficiently allocate substantial cash inflows.

In the light of the above, an assessment of the pension reform experience is extremely important both to better understand the drivers behind the current unsatisfactory position of the pension market and to learn lessons from the mistakes that have been made so far. This has relevance for countries that have decades of experience and feel disappointed with their situation, those who have just started to implement reforms and those whose pension reforms are still in an embryonic form.

The performance of pension reforms can be assessed from several perspectives. First, the low level of contributors as a ratio of labour force (e.g., less that 20% in many Latin American countries) suggests that the reforms have not succeeded in securing an income in old age for a vast majority of the population. Second, the recent

experience of Argentina clearly shows that even those who are covered by the compulsory pension schemes may not be able to secure their retirement income. Argentina's default on government bonds has deeply affected the portfolios of pension funds that had heavily invested in government securities. Third, it is not obvious that pension funds stimulate development of the local financial sectors and are a driving force for financial and economic development and integration across borders.

In this article I abstract from the issue of incentives for employers and employees to increase participation rates and the related social issues, such as how to deal with unfulfilled obligations (e.g., the deficits in pension funds portfolios). Instead, the paper concentrates on the link between home bias (i.e., strong tendency of pension funds to invest on domestic markets), the profitability of such investments and the development of financial markets. I expand on the well documented view in the financial literature that home bias has a negative impact on the portfolio performance by claiming that home bias may also be harmful for the development of markets where it occurs. To illustrate the point I discuss the case of the Polish pension funds' investment practices. I document the weak performance of pension funds equity investments and argue that the enforced home bias is responsible for the situation. In particular, the very limited diversification opportunities faced by pension funds are partly responsible for the situation and may result in even weaker performance in the future. The findings support the view that enforced home bias has a negative impact on the local stock market development, on the performance of pension funds, and on the whole pension reform. The findings suggest that borders should be opened to capital flows.

The paper is organised as follows. Section 2 outlines the basic arguments for portfolio diversification and provides some evidence on its practical effect. Section 3 summarises the existing literature on the impact of pension funds on market development. Section 4 summarises and interprets data from the Warsaw Stock Exchange. Finally, Section 5 closes with conclusions.

2. Diversification in theory and practice

The idea of locking funds on domestic markets contrasts sharply with the financial principles of efficient asset allocation stemming from Markowitz portfolio theory. When investment opportunities are limited to a group of highly correlated assets (i.e., assets that are characterised by high sensitivity to the same factor or factors), investors become vulnerable to potential adverse market conditions. Assuming that an investor's main objective is to maximise return for a given level of risk (or minimise risk for a given level of return), she or he benefits from diversification when less than perfectly correlated assets are included in the portfolio.

The reduction in risk that arises through the inclusion of low correlated assets in a portfolio is illustrated in Figure 1, which shows the level of risk for portfolios of assets that are characterised by different levels of correlation. Here, risk is represented by standard deviation and the portfolios contain up to 30 assets. The fact that a portfolio consists of many assets does not imply that there are any diversification benefits. The top (red) line represents the risk of an (equally weighted) portfolio that is constructed using assets with the pair-wise correlation coefficient of 0.8, and shows that the initial reduction of risk achieved from including, say, three assets does not improve when more assets are put in the portfolio. The standard deviation of the portfolio remains nearly unaltered whether ten or thirty stocks are included. The diversification benefits kick in when the correlation between assets is low. For instance, the bottom (blue) line that represents risk of a portfolio based on uncorrelated assets (the correlation coefficient is equal to zero). The standard deviation of the portfolio consisting of uncorrelated assets drops from the initial 10% level (the standard deviation of every individual asset) to less than 2% when 30 assets are included. This is equivalent to more than an 80% risk reduction. It is important to note, that this reduction in risk does not affect the expected return in this sense that the expected return on each portfolio for every level of correlation is the same, i.e. although the standard deviations of the portfolios differ and depend on the size of correlation between assets, the mean values of the portfolio are the same for each number of assets included.

Figure 1. Impact of different correlation levels of stocks included in a portfolio on a portfolio's risk.

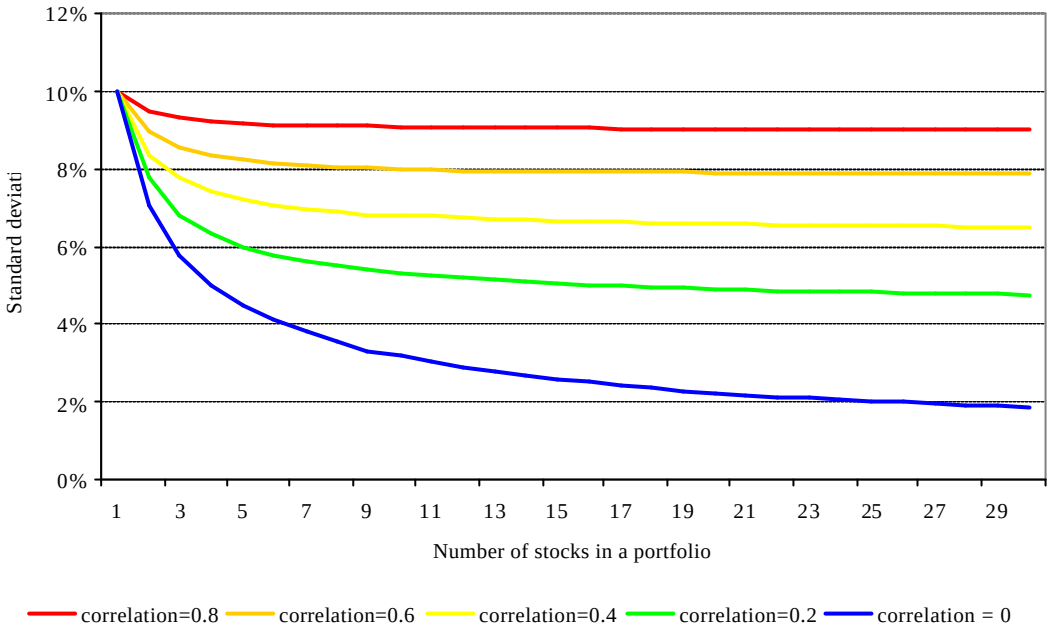
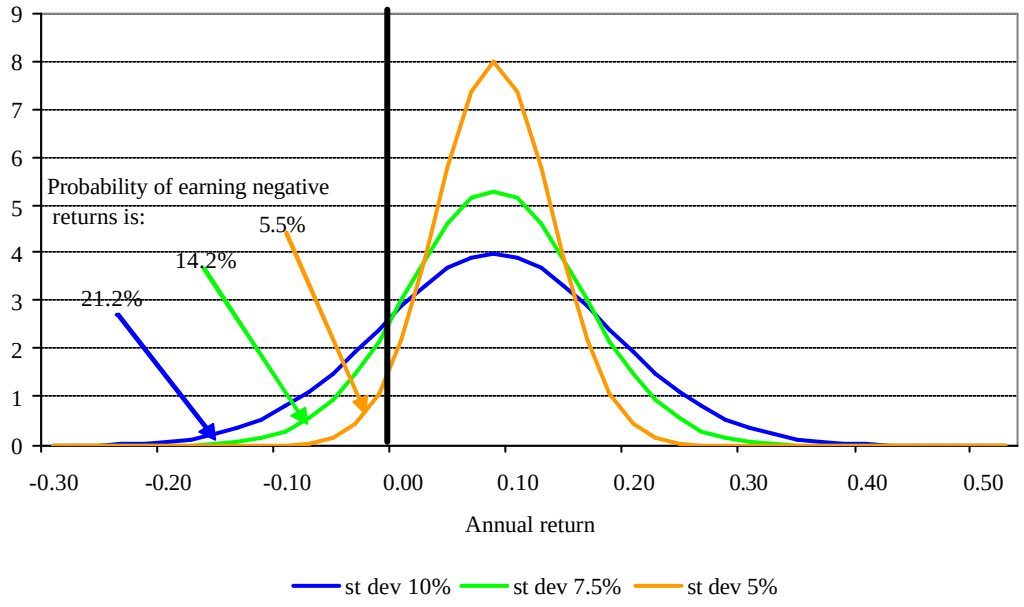


Figure 2. Return distribution and probability of loosing money.



To highlight the benefits of diversification, Figure 2 shows that the effect of high volatility on the probability of losing money increases substantially when portfolio risk increases. If we assume that the expected average return on a portfolio is 8%,

then the probability of not earning positive return is 21.2%, 14.3%, and 5.5% when the standard deviation is 10%, 7.5% and 5% respectively. Therefore, in this example a twofold decrease in standard deviation results in nearly a quadrupled decrease in the probability of not making any money at all.

Therefore, making the "right" diversification, rather than simply including many (highly correlated) assets in a portfolio, is vital to minimise portfolio risk and the likelihood of losing money. However, in practice there is no simple and unique answer to what the "right" portfolio is. This is partly because the choice of assets for a diversified portfolio is based on expectations on the future performance of assets that, by definitions, are not known with certainty at the time of the portfolio creation. Moreover, despite the common assumption that investors have homogeneous preferences, investors have indeed different characteristics (e.g., attitudes to risk exposure, or time-horizon of investment). Transactions costs also restrict optimal allocation.

The first, systematic approach to the problem of the optimal portfolio selection was offered by Tobin (1958) who postulated the idea of the efficient portfolio, i.e., a uniquely defined portfolio held by all investors, consisting of all assets available on the market (the mutual fund theorem). The efficient portfolio guarantees the optimal allocation of assets in the sense that in the absence of transactions costs it offers the lowest exposure to risk for the highest return (determined by the risk-free rate of return available on the market).

However, this idea of holding a unique portfolio by all investors contrasts with the advise of financial planners. Asset managers and financial planners differ sharply in their advice on asset allocation to clients. The individual differences stem, for example, from the fact that different investors have different degrees of risk aversion. For instance, in addition to differences in personal taste and the amount of money that investors are ready to gamble, such factors as the investors' age and, somewhat related to this, the investment horizon are strong determinants of the selection choice.

Bodie (2001) suggests that as long as age is the determining factor of the asset allocation, the general rule of thumb should be that the percentage invested in equities should be 100 minus investor's age. More explicitly, a person 30 years old should

invest 70% in equities, whereas a person of 60 years of age should reduce the equity exposure to 40%.

Campbell and Viceira (2002) also argue that the optimal portfolio of long-term investors may be quite different from that of short-term investors. The long-horizon analysis assigns a far more important role of bonds in the optimal portfolio. Although cash (i.e., money market) and T-bills are assumed to be risk-free in traditional financial analysis, they are risky, or even very risky, when a long-horizon investment is considered. Their long-term risk stems from the fact that when a long-horizon is under consideration, the money or T-bill investments must be rolled over at uncertain future interest rates. Long-term bonds with low inflation uncertainty, or better still, inflation-indexed bonds are much safer for a long-term investor. Campbell and Viceira (2002) also show that in the absence of complete financial markets (highly likely in the case of emerging markets) the time-varying nature of volatility of stock returns warrants a reduction in stocks (estimated to be around 10% for the U.S. data, presumably more for an emerging market). Finally, they show that while it is optimal for a young person to hold more stocks (the argument consistent with Bodie (2001)), this advice has to be nuanced when investors have insecure jobs and/or are close to subsistence levels of consumption (this argument might also strongly apply to emerging markets). Canner, Mankiw and Weil (1997) show that in the period 1926-1992 the optimal portfolio on the U.S. market should hold bonds and stocks in a ratio 1:3.

Therefore, the question of what is the "right" decomposition of assets in a portfolio is far from having a unique answer. This ambiguity is particularly troublesome when portfolios of pension funds are discussed. This is because, although pension funds are definitively long-term investors, they manage portfolios of very diversified groups of clients. While many young contributors may be quite happy to invest in more risky assets, older contributors and those already receiving their pensions may find portfolios dominated by risky assets unacceptable.

This problem of different preferences may be particularly relevant to newly created funds (like those in the CEE) that have a relatively high proportion of young contributors. This suggests that "young" pension funds may be more equity oriented

to match the preferences of the relatively young group of contributors. However, emerging markets are prone to higher inflationary pressures and economic instabilities that result in higher unemployment swings and this factor may bend the choice of the portfolio allocation towards bonds.

2.1 Bonds or stocks?

In contrast to the financial literature, which emphasises the benefits of diversification, several economists (particularly those associated with the actuarial industry) argue that pension payments are bond-like in nature, and therefore pension funds should not take risks with the sponsoring company's shareholders' funds. In the light of this, they suggest that pension funds should invest heavily, or even completely, in government (domestic) bonds (see e.g., Bodie (1995), Exley, Mehta and Smith (1997), Gold (2001), Bader and Gold (2003)). This, they argue, would also help governments finance their national debt (again an appealing argument for emerging markets). However, even if such investment strategies fulfil a "patriotic" duty towards financing government debt, it does not make the investment safer or even profitable enough to cover pension funds' liabilities, which should be the primary objective of funds' managers. In addition, such investment policies are a clear violation of the generic idea behind pension reform and the creation of a compulsory saving pillar that is separated from the centralised PAYGO scheme. This is because, if government debt is the primary asset of allocation, the pensioners' wealth directly depends on the government "generosity", i.e., the size of a premium on government bonds. Moreover, if a smooth transfer of contributions between pension funds' clients, and the government is the main responsibility of pension fund managers, then high fees managers typically receive as the reward for their asset allocation skills are not justifiable. In addition, the concentration on government debt as the investment asset does not rationalise social and fiscal cost related to the creation and management of compulsory pension funds. In fact, there is no need to have pension funds, and one central organisation, similar or even the same as the one that is responsible for PAYGO contributions and pension payments should be sufficient.

Moreover, despite the common belief to the contrary, bond investments are not safe, especially on emerging markets. For example, the prolonged Argentinean recession

and the final default on government bonds in August 2003 presents a strong argument against investing in (local) bonds.[6] Elsewhere, the financial and economic distress experienced by Brazil in the 1980s and early 1990s shows clearly that a guaranteed high demand for government bonds (especially those that are inflation-indexed) may loosen government's discipline on monetary and fiscal policy and spiral inflation.

Heavy investment in government bonds can be troublesome on developed markets, too. The enforced bond bias that took place in the UK after the collapse of the Maxwell Pension Fund in 1992 resulted in the lower rate of return on pension fund investments.[7] Low returns can be particularly troublesome in the case of benefit-defined schemes as, if they are prolonged, they can lead to a deficit in pension funds' portfolios.

Therefore, are stocks an alternative investment despite their inherent high risk? On average stocks do offer higher expected return (to compensate for their higher risk) but one must remember that the expected equity risk premium that attracts investors may not be realised. MaCurdy and Shoven (2001) show that 25% of the time equity investments under-perform twenty-year inflation-indexed bonds yielding 3.5 percent in real terms. Crashes on equity markets do happen, and they are not exclusively an emerging market phenomenon (e.g., the 2000-2001 correction that shook developed markets and ended the period of the high-tech boom is a good example).

In the case of emerging markets, and especially those of CEE, an additional problem with extensive equity investment can stem from the fact that domestic markets offer very limited investment opportunities. The lack of stocks that a prudent fund manager would be willing to invest in, i.e., stocks big enough, liquid enough and about which information is reliable and available, can be a major obstacle. For instance in Peru, although there are 202 listed stocks, only nine are large and liquid enough to be

[6] In fact, the pressure of the Argentinean government on pension funds increased in October 2001. It was argued that pension funds' bond investments were a part of the economy rescue plan. First, the government enforced pension funds to invest in government bonds. Next, it requested that all bondholders had to swap government bonds with interest rate as high as 26% for new securities with a 7% return.

[7] Bank of England Quarterly Review Market and Operation (May 1999) reports "The combination of strong and rather price-insensitive demand (largely from pension funds) with limited supply, has pushed real yields down, perhaps more than in the conventional gilt market".

included in the S&P/IFC index. These nine comprise 94% of volume traded in the country's stock exchange. On the Prague Stock Exchange and the Budapest Stock Exchange there are all together 55 and 54 listed stocks respectively (end of 2004). The Warsaw Stock Exchange, with 230 stocks, is definitively one of the biggest and most developed stock exchanges of the CEE region, however only 25 of the listings have been included in the S&P/FCI index. Eight of these stocks are from the banking sector, five are chemicals and four are construction firms. The remaining companies are from the media, gas and oil, and high-tech sectors. Such narrow sector division indicates that, not only are there very few stocks that a big institutional investor might be willing to invest in, but also the returns on these companies may be highly correlated. This indicates that diversification opportunities are limited. To illustrate the case Table 1 shows correlation coefficients calculated for the sector indexes that companies included in the S&P/FCI index come from (i.e., banking, chemical, constructions, gas and oil, telecom and media, and software and computers). The correlations are calculated for monthly returns over the period 2001-2004. it is apparent, that with correlation coefficients as these presented in Table 1 reduction of risk resulting from investing in the biggest companies listed on the Warsaw Stock Exchange is weak.

Table 1.
Correlation coefficients of the Warsaw Stock Exchange selected sector indexes for the period 2001-2004. Statistics are based on monthly observations.

Sector Indexes	Banks	Chemicals	Construction	Gas and Oil	Telecom and Media	Software and Computers
Banks	1					
Chemicals	0.54	1				
Construction	0.61	0.52	1			
Gas and Oil	0.69	0.66	0.61	1		
Telecom and Media	0.70	0.71	0.56	0.80	1	
Software and Computers	0.63	0.73	0.57	0.73	0.79	1

Source: Own calculations based on data available from DataStream.

The scarcity of stocks available on emerging markets contrasts with the abundance of government bonds available on these markets. Local authorities often use pension funds' assets as an easy way to finance government debt (again, Argentina's case should be a warning against such practices). This 'patriotic support' can be enforced by direct or indirect restrictions on the portfolio allocation of pension funds.

In summary, investment in equities alone or bonds alone does not automatically guarantee success especially when domestic assets only are included in a portfolio. It has been shown that risk is lower and there is a lower probability of losing money when a portfolio is built on low-correlated assets. Therefore, investment must be open to international markets that offer a broader range of low correlated assets.

2.2 Investment in practice

Some developed countries have advanced private pension schemes with significant foreign investments in their portfolios. For example, in the Netherlands foreign assets can be up to 70% of pension funds portfolios (this includes within EU investments). In the case of the UK and Japan foreign assets constitute about 23-24% of portfolios. Similar figures are recorded for Chilean funds. However, such high figures are not general for either developed or emerging markets. In Germany and France, where pension reforms have proved difficult to implement, only 10% of the operating pension funds' assets are allocated on international markets. In the case of emerging markets, even those with compulsory pension schemes, international assets are only a small proportion of total assets included in pension funds' portfolios. For instance, in Argentina and Peru the foreign assets are below 9%, and 7% respectively. In the post-communist countries of CEE these ratios are close or even equal to zero.

The lack of international diversification is striking since the small scale of local equity markets means that most of the collected contributions have to be invested in local, predominantly government, bonds. Iglesias (2002) reports that 83.4% of El Salvador' pension funds assets are invested in domestic bonds. Analogous figures for Bolivia and Uruguay are 73.5% and 57.6% respectively. In the case of CEE countries high ratios are also observed. For instance, in Hungary and the Czech Republic 76-78% and 84% of pension funds' assets under management are invested in local T-bonds. In Poland the proportion of bond investment reached 60% in 2004. With T-bills added the ratio was 64%. This is particularly important given that the size of the Polish public debt exceeds 50% of GDP (EBRD, 2004).

Overall the statistics indicate strong domestic bias and tendency to invest in bonds. The domestic bias is partly the result of inefficient markets (i.e., lack of information on foreign assets, restrictions to trade, etc.), but mostly it is enforced by authorities in an attempt to boost the development of local markets.[8] The bias towards bond investment results often from investment regulation faced by pension funds. It may, however, also reflect the fact that there are not enough equities available on domestic markets that fund managers are able and willing to invest in.

Restrictions on pension funds' international investments are quite common. For example, German, Italian and Canadian funds must not invest more than 20% of their assets abroad. The UK and US regulations are somehow more liberal as funds must apply a "prudential rule" to the size of international investments. In the case of emerging markets restrictions are typically much stronger. For instance, the Polish pension funds can invest no more than 5% abroad, in Peru 8%, and in Argentina 10%. Brazilian funds are restricted to invest all their money at home. The Chilean authorities are more liberal, allowing up to 30% of the money to be allocated in foreign assets. However, this was not always the case. In the early 1980's, when the funds started to operate, they were restricted to invest all their money in domestic fixed-income securities.

Taking into account the limited domestic investment opportunities of (emerging) markets, it is striking that local authorities impose such restrictions on the funds. It is even more surprising that the World Bank, which promotes and stands by pension reform programmes, has not exercised stronger powers to change these "xenophobic" attitudes. If the World Bank is such an advocate of international diversification, as James (1996), for example claims, then more efforts should be made to stop local governments from locking pensioners' money on domestic markets.

Since it is obvious that such restrictions do not help funds to improve their performance, enforced home bias could be justified if and only if it resulted in other broader benefits. Given that one of the expected consequences of pension reform is

[8] A recent study by Aguila (2005) show that the expectations of achieving higher saving rates may be also incorrect. Her study of the Mexican case shows that saving rates decreased rather than increased as the result of pension reform and the introduction of the compulsory saving schemes.

the improvement and further development of domestic financial structures and institutions, the decision to lock funds on local markets could be justified if such improvements and efficiency gains have been actually taking place. As the next sections show, this is not the case.

3. Home bias and financial market development

In theory, financial institutions should stimulate economic growth as they increase the rate of savings/investment and improve the efficient allocation of funds (e.g., see the endogenous growth models of Lucas (1988) and Roemer (1989)). However, empirical research indicates a less straightforward relationship, with deviations from the theoretical predictions being particularly prevalent in developing markets. Emerging markets exhibit inefficiencies at various levels of market organisation and operation, resulting in dramatic departures from 'friction-less market' theoretical assumptions.

In the early 1980s, when the World Bank started to champion the idea of pension reform via the introduction of a three-pillar system, it was argued that the creation of big institutional investors would lead to financial market deepening. In particular, it was argued that strong institutional investors (i.e., pension funds) would enforce prudence and transparency of market structures and operations leading to physical and operational development of local markets. As a market's efficiency improved, more companies could be expected to go public, which would result in more capital coming on the market. This would improve market liquidity, which in turn, would improve market efficiency. In addition, corporate governance of listed (and indirectly non-listed) companies would grow stronger.

The evidence, however, suggests that the introduction of pension funds as dominant investors does not have an ambiguously positive impact on the market development and performance. While there is relatively strong evidence that fixed-income security markets grew (as a result of the heavy investments in government bonds), it is not obvious that these markets became more efficient. Although Roldos (2004) concludes that private pension funds in Latin America and CEE have a positive impact on the development of local bond markets, he stresses some problems with liquidity.

Liquidity, or rather its lack, can be a serious problem, indeed. For example, when in 1985 Chilean pension funds gained permission to include equities in their portfolios, they found it excessively difficult to close their fixed-income position. As the result, their asset allocation changed only slowly (Srinivas, Whitehouse and Yermo (2000)).

Other problems can also emerge. For instance, Abdel-Motaal (2002) reports that in early 2003 a spread between external (swapped to pesos through cross-currency swaps) and local bonds in Mexico was around 300 basis points. The difference was mainly caused by regulations preventing local pension funds from investing abroad.[9] Similarly in Peru, Brady bonds paid higher spreads than local corporate bonds, owing to the fact that pension funds could invest only up to 5% of the portfolio in sovereign external debt versus 40% in corporate bonds. The Argentinean experience is yet another case of growing market inefficiencies. Although as the result of the government policy the size of the bond market had experienced steady growth, the efficiency of pricing and allocation of funds was highly questionable.

Arguments supporting the view that pension funds can have a negative impact on equity market development can also be found in the financial literature. For instance, Singh (1996) strongly criticises the Word Bank for enforcing the placement of contractual savings on underdeveloped financial markets as a part of the pension reform programme. He warns against fund misallocation and its negative impact on economic growth. He provides evidence that, in contrast to the common belief, emerging equity markets had increased less in value in the late 1980s, i.e., after pension funds started to invest in local equities, than they had increased in the early 1980s. The Chilean market, despite being a commonly quoted example of pension reform success, underperforms in many indicators when compared with the other 11 emerging stock markets discussed in the paper. Zalewska (2005) gives a systematic analysis of the development of an emerging stock market facing the pressure of growing pension funds. The paper documents the underperformance of the Warsaw Stock Exchange as compared with the other seven emerging CEE markets operating in the post-communist countries that joined the EU in May 2004. Zalewska (2005) shows that nearly all performance measures commonly applied to assess the stock

[9] This phenomenon has been also mentioned by IMF (2004)

market performance are worse for the Polish market since 2002, i.e., since pension funds operating in Poland started to dominate the local market (this theme will be further developed in the next section).

Several authors stress that a significant initial level of market development is a necessary precondition for pension funds' investments to have a positive impact of on market development. For instance, Impravido, Musalem and Vittas (2003) emphasize that such a precondition is particularly important in the case of small countries that cannot fully exploit economies of scale and scope in the provision of financial services. The authors warn that in such countries the financial sectors are too small to create competition and liquidity. The markets tend to be poorly regulated and burdened with high transaction costs.

In addition, several authors stress the role of foreign investors in stimulating market development. Frenkel and Menkhoff (2004) point out that the correlation between foreign investors and market development may not be positive. They argue that foreign (less informed) investors may have a strong negative impact on the relative position of local investors as "they are likely to amplify occurring imbalances or even trigger financial shocks". To avoid, or at least to minimise, such situations the authors propose that local investors should be encouraged to internationally diversify their portfolios. That is, not only should foreign capital come to a developing country, but also a developing country's capital should be invested on international markets.[10] Such 'exchange' would create more balance on an emerging market and a healthier coexistence of different players.

Although Holtzmann (1999, 2000) defends the multi-pillar system sponsored by the World Bank as the solution that achieves diversification of risk, offers higher rates of return and accelerates market development, he points out that it does not solve all the problems, and in fact, its "total effects are likely to be limited" if various political and

[10] Roldos (2004) also postulates 'a gradual but decisive loosening of restrictions on equity and foreign investments'. He argues that locking assets on a local market may lead to price distortions, bubbles and concentration of risk. Impravido et al. (2003) also warn that new policies "should not be constructed as an argument for maintaining a closed capital account and to prohibit pension funds from investing overseas". Restricting capital flows may lead to mispricing of domestic assets.

economic preconditions are not in place. These preconditions include a reasonably developed financial market and reduction in home bias.

All in all, there are several voices in the financial literature that argue that domestic bias is not unconditionally positively correlated with market development. Intensive investments of domestic institutional investors, such as pension funds, do not automatically impact positively on market development. Indeed, if investments are overwhelming relative to what a market can (efficiently) absorb, they may, in fact, hamper market development. To illustrate the case, the Warsaw Stock Exchange (WSE) is analysed in the next section.

4. The Polish Experience

In 1999, when the Polish pension funds started to operate, the Warsaw Stock Exchange (WSE) was comparatively large. While small compared with the main world markets, it was big compared to the other emerging markets of CEE. For instance, at the end of 1999 the stock market capitalisation of the WSE was just below $30bn, i.e., about 1% of the capitalisation of the U.K. companies listed on the London Stock Exchange (£1,820.08bn or $2,939.97bn). At the same time, the WSE was twice as big as the neighbouring markets in the Czech Republic and Hungary (with market capitalisations of about $13.5bn, and $16.7bn, respectively) and ten times as big as the Riga Stock Exchange (with capitalisation of $0.3bn). The following years resulted in further growth of the WSE, both in terms of the number of companies and capitalisation.[11] Table 2 presents some basic statistics on the WSE growth and the size of pension funds' assets and equity investments. Capitalisation of the WSE was over $68bn at the end of 2004. Although the capitalisation was more than twice that recorded for 1999, it was still small compared with the capitalisation of the developed markets. The biggest company on the London Stock Exchange (BP, with the market capitalisation of £110bn or $211bn) was over three times as big as the total equity quoted on the WSE.

[11] However, Zalewska (2005) shows that the market growth was not that impressive when compared with other emerging markets of CEE.

Table 2.

Selected Statistics of the WSE (end of year figures)

	1999	2000	2001	2002	2003	2004
No of listed companies	221	225	230	216	203	230
Equity market capitalization (bnPlz)	123.41	130.09	103.37	110.57	167.72	291.69
Equity market capitalization (bn$)	29.84	31.48	25.94	29.02	44.91	68.64
Equity market capitalisation, %GDP	19.9	18.1	13.7	14.3	17.3	24.3*
Capitalisation of 10 biggest companies as % of market capitalisation	69.5	66.4	66.3	71.2	54.4	37.7
No of companies with capitalisation > 500mln$	13	14	15	14	16	21
% growth of market capitalisation		5.4	-20.5	6.9	51.7	73.9

* based on EBRD estimates of GDP

It is clear from Table 3 that the pension fund assets under management grew fast (although since 1999 the number of listed companies has increased slowly). The pension funds, however, have limited choice of assets for their portfolios. Although, there are over 200 stocks listed on the market, only 25 of them have been included in the S&P/FCI index. These 25 contribute to about 75% of market capitalisation. However, OFEs (i.e., Polish abbreviation for pension funds) have been broader in their choice.[12] As Table 2 shows, almost from the beginning of their operation the portfolios of the pension funds include shares issued by more than 100 companies. This amounts to about 50% of all listed shares, with the ratio growing to 61.5% in 2004. These figures suggest that pension funds may indeed face difficulties in choosing stocks for the portfolios.

The pension funds face tight restrictions on the proportion of their assets that can be invested in equities and the proportion of shares of listed companies that they can invest in. For instance, no more than 40% of total assets may be invested in publicly quoted shares although an additional 10% can go to the NIF shares.[13] Within this, up to 10% of total assets may be invested on parallel and free markets on the WSE with a maximum 5% invested on the free market; up to 10% of the total assets may be invested in shares quoted on the regulated over-the-counter market and shares not publicly quoted but admitted for public trade. In total each individual pension fund cannot hold more than 10% of the shares of a company. Pension funds are not allowed

[12] Abbreviation "OFEs" comes from the Polish name for pension funds – Otwarte Fundusze Emerytalne.

[13] NIF (National Investment Funds) have been created as the result of mass privatisation .

to invest in securities issued by its owning company, the company managing the pension fund or any entity associated with these shareholders.

Table 3.

Selected Statistics of OFEs equity investments

	1999	2000	2001	2002	2003	2004
Amount of OFEs assets under management (bnPlz)	2.21	9.92	19.41	31.56	45.44	62.63
Equity investments (bn Plz)	0.64	3.23	5.38	8.62	14.42	20.99
Equity investment as a % of all investment	0.30	0.35	0.29	0.28	0.33	0.34
No of companies included in the OEFs portfolios	95	117	120	105	103	142
No of companies included in the OEFs portfolios as % of all listed equities	43.0	52.0	52.2	46.6	50.7	61.2
No of companies selected by more than half of the operating OFEs	22	21	24	24	36	42
% growth of equity investment		401.9	66.5	60.1	67.3	45.6

Statistics presented in Table 3 show not only that the choice of stocks is limited, but the stocks chosen are often chosen by several funds. About 30% of all selected companies are common to more than half of the operating funds. Indeed, as many as five companies are common to all the OFEs. These are the biggest companies on the market and contribute to as much as 33.8% of OFE's portfolios. Those stocks that are chosen by at least half of the operating pension funds contribute to nearly 62% of the pension funds' portfolios (see Table 5 for more details). This suggests that risk/return characteristics of the OFE's portfolios are very similar across funds.[14] Given the cost of running a fund and the small size of the market, this raises the question of what the benefit is of having as many as 17 separate funds.

It is important to point out that the fact that a company is only included in the portfolios of a few funds does not in itself necessarily mean that they are less "good". The fact that few funds have bought particular shares may be the result of the limited number of shares available on the market. The free float of some companies is very small. Even if only a small number of funds buy shares within the allowed limits, these purchases can completely exhaust the freely floating shares for some companies. For instance, although only one fund (Pocztylion) invested in shares of Centrozap, it

[14] Data as of the end of 2003.

owned nearly 100% of the company's free-float.[15] Table 4 presents, for selected companies, the percentage of free float taken over by pension funds and the number of pension funds that have invested in a particular company. The companies presented are chosen from the group of companies in which less than half of the pension funds have invested. The statistics are as of the end of December 2002.

Table 4.
Percentage of free float acquired by pension funds for selected "less popular" companies, as of December 2002.

Company	% of free float acquired by OFEs	No of OFEs investing in shares	Company	% of free float acquired by OFEs	No of OFEs investing in shares
Bauma	40.98	2	Mostostal Warszawa	36.25	2
Centrozap	98.58	1	Novita	96.31	3
Cersanit	39.10	7	Permedia	68.33	3
CSS	46.15	3	Polfa Kutno	28.28	1
Eldorado	34.16	4	Polgrafia	72.25	4
Emax	72.30	5	Stomil	54.99	7
Farmacol	40.24	7	Talex	55.50	5
Grajewo	76.24	3	Telmax	30.33	2
Groclin	59.42	4	Tras Tychy S.A.	88.72	5
Krosno	46.40	4	TUE	88.21	2
Lentex	39.95	6	Wilbo	35.52	5
Mennica	38.93	2	Zywiec	56.80	6

Source: Economic Update, CA IB, 2003

In contrast, Table 5 shows statistics on the acquisition of the free float for companies that attract the most pension funds. These companies are among the biggest on the market. Table 5 also shows weights allocated to each of the companies in the total portfolio of pension funds and in three indexes: WIG 20 (based on the 20 biggest and most liquid companies), WIG (based on approximately the 100 biggest, and the international Morgan and Stanley MSCI index. It is apparent that the two biggest companies on the market (TP S.A. and PKN Orlen) are heavily weighted in the pension funds portfolios. Together with Bank PEKAO (also over-invested as compared with the composition of the WIG index) these three biggest companies on the market constitute 38.4% of the pension funds portfolios. In addition, the correlation of the share price movement of these "dominant" companies is high. In 2002 the correlation of the TP S.A. returns with the PKN Orlen returns was 60.3%, and with Bank PEKAO returns 57.1%.[16] PKN Orlen and Bank PEKAO returns were

[15] The company was delisted in on 1 September 2003.
[16] The statistics are based on daily observations.

correlated at 42.5%. A year later, 2003, the corresponding correlation coefficients were 63.2%, 57.1% and 55.9%. These statistics alone show that diversification of pension funds portfolios is not really in place.

Table 5. OFEs stakes in the most commonly chosen companies and their weights in leading indexes.

Company	% proportion in				Free float of the stock,%	OFEs holdings as % of free float	No of OFEs investing in shares
	OFEs portfolios	WIG20 index	WIG index	MSCI			
TPSA	13.9	12.7	9.9	20.2	19.89	33.6	17
PKN Orlen	13.4	12.8	9.8	20.2	50.49	30.6	17
Bank PEKAO	11.1	14.6	10.2	24.4	34.50	17.6	16
BPH PBK	6.1	10.0	7.0	10.0	28.92	23.2	14
BZ WBK	3.6	6.1	3.0	0.0	29.53	20.2	15
ING BSK	2.9	0.0	2.4	0.0	12.23	40.2	9
Prokom	2.8	6.4	4.5	4.1	46.62	30.0	17
BRE	2.0	4.4	2.0	3.4	50.00	16.7	11
Swiecie	2.0	2.5	5.0	1.9	18.52	49.1	9
Kredyt Bank	1.8	0.0	1.1	0.0	20.30	34.3	12
KGHM	1.4	7.9	7.3	6.6	35.67	12.0	14
Computerland	0.5	1.9	1.6	1.4	74.92	8.9	17
Agora	0.4	5.7	3.7	3.7	53.00	2.5	17
Total	61.9	85	67.5	95.9			

Source: Schroder Salomon Smith Barney/Dom Maklerski Banku Handlowego SA, 2003; KNUiFE Yearly Reports

It does not mean, however, that the OFEs do not search for new investment opportunities. The limited number of existing listings has turned the pension funds' attention towards newcomers to the market and new listings are very popular with the funds. The financial literature, however, is very consistent in reporting long-term underperfomance of IPOs. New listings, although underpriced when placed on a market, tend to provide investors with lower returns than "established" stocks in the three - five year period (e.g., Loughran and Ritter (1995, 2000, 2002), Ritter and Welch (2002)). Therefore, if pension funds are safe players and tend to keep passive portfolios, the tendency to include big proportions of new listings is surprising. However, this is exactly what is observed on the WSE. For instance, all five companies that went public in 2002 became a part of OFEs' portfolios. Six companies that went public in 2003 were also acquired by the pension funds. In 2004, out of 36 new listings, 34 became a part of at least one pension fund portfolio and as many as 17 of these stocks attracted at least six out of 15 operating funds.

The performance of these new purchases is rather unimpressive. In total, the whole group of 34 new offerings chosen by the pension funds in 2004 lost on average 1.53% per invested Polish zloty (counting from the first quotation price to the closing price recorded on 31 December 2004; more details can be found in Table 6). If only the most popular 17 new offerings are taken into account, then the average return is 2.47%, heavily affected by the 66% return earned on shares of Inter Cars S.A. (which, if excluded brings the average down to -1.51%). It is interesting to note that the pension funds successfully managed to avoid the IPO with the most dramatic decline in share price value (i.e., Capital Partners that share price dropped down by 70%). However, it remains unclear whether it was good understanding of the market that protected the OFEs from the investment, or it was the lack of their interest in the company that pushed the price down. In the case of other big losers (Artman S.A. and Hygienika with a share price decline of -57.1%) and -49.1% respectively) the pension funds were not that skilled and have included them in the portfolios. For comparator purposes it should be mentioned that the average performance of all the companies listed on the WSE was 55% in 2004. In the light of this the choice of new listings is rather surprising.

Table 6.
Returns of the 2004 IPOs (since the first listing)

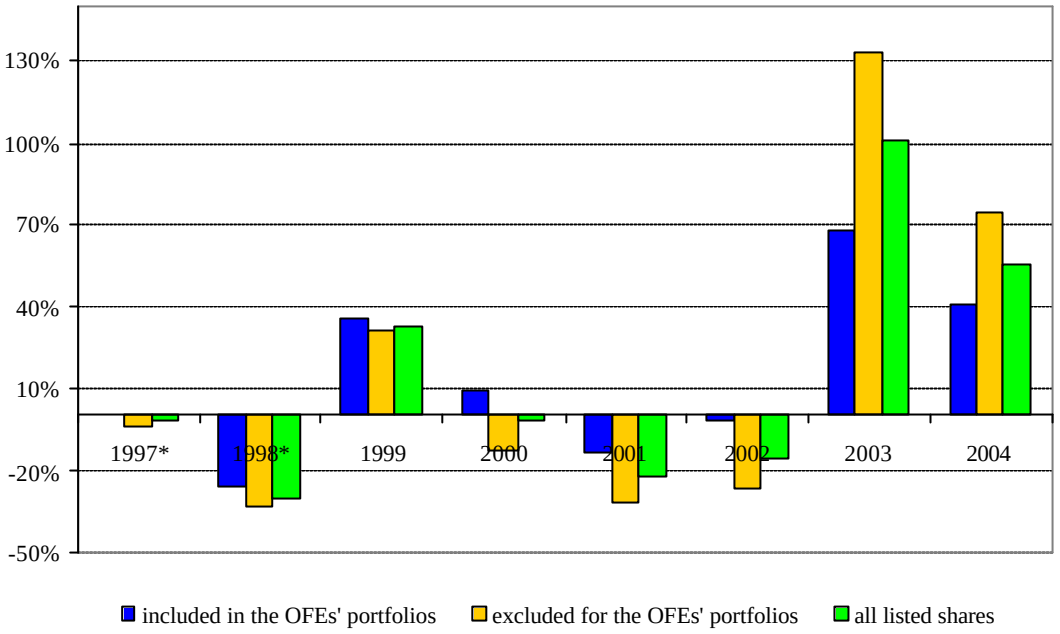
Company	No of purchasing OFEs	Return, %	Company	No of purchasing OFEs	Return, %
Artman S.A.	3	-57.1	Inter Cars S.A.	9	66.2
ATM Grupa S.A.	7	14.2	IVAX Corporation	6	-14.5
ATM S.A.	6	1.3	JC AUTO S.A.	9	-1.6
Borsodchem RT.	8	-6.3	Koelner S.A.	7	6.2
Broker FM S.A.	6	-11.5	MOL Magiar Olaj- ES Gazipari RT.	2	0.2
Capital Partners S.A.	0	-70	PBG S.A.	7	21.3
CCC S.A.	3	-4	PEKAES S.A.	7	-10.7
Ceramika Nowa Gala S.A.	6	8	Polcolorit S.A.	3	-3.2
Comp. Rzeszow S.A.	10	-10.7	PKO Bank Polski S.A.	14	13.5
DGA S.A.	2	-2.3	Praterm S.A.	3	0
Drozapol-Profil S.A.	1	24.3	PTSZ Plast-Box S.A.	6	-28.4
Elstar Oils S.A.	4	3.7	SWISSMED Centrum Zdrowia S.A.	2	-26.1
FAM - Technika Odlewnicza S.A.	3	16.9	Techmex S.A.	11	-19.5
Firma Chemiczna Dwory S.A.	9	7.4	Torfarm S.A.	5	-1.6
Globe Trade Centre S.A.	12	7.1	TVN S.A.	5	10.4
Hygienika S.A.	2	-49.1	Wydawnictwa Szkolne i Pedag. S.A.	0	-5.8

Source: WSE Fact Book 2005 and KNUiFE.

In Zalewska (2005) I show that over time the performance of the pension funds portfolios has became very much index like. The early over performance of the OFEs' portfolios relative to the WIG market index has vanished over time. Since 2002 the pension funds' portfolios have "almost become" the WIG index. Figure 1 shows that the story is more pessimistic. As the funds target big companies heavily represented in the market index, their weighted portfolios can indeed look very much like the WIG, but in general, the choice of the assets is less than impressive. Figure 3 presents yearly returns for the three groups of assets in the period 1997-2004.[17] The first (blue) bar, named "included", represents the average (equally weighted) return on companies that have been reported to be included in the portfolios of at least one OFE at the end of every calendar year. The second (yellow) bar is the average return on companies that are "excluded" from the OFEs portfolios at the end of a corresponding calendar year. The last (green) bar is the average return for the market. Since the pension funds' first investment took place in 1999, two additional averages for 1997 and 1998 are presented for comparator purposes. In the case of these two years the 'included' bars are the average returns calculated for these companies that were selected by the OFEs in 1999 and were listed in 1997 and 1998 respectively. In other words the 1997 and 1998 included bars measure the post market performance of the "first choice" companies as of 1999. The excluded bars are the averages of the returns of the remaining companies listed on the market in these years.

Figure 3. Average yearly returns on companies listed on the WSE (* - as selected or not in 1999)

[17] The statistics are based on data reported by the WSE.



It is clear that the initial choice of assets, at least as measured by returns, is quite good. The selected companies, on average, performed better than those excluded, and the equally weighted market averages. However, the figures for 2003 and 2004 are not that impressive. The included stocks perform worse than those excluded and worse than the total market. The difference between the groups is also large. These differences are also statistically significant. Table 7 shows the means of both included and excluded groups, t-statistics and corresponding probabilities of accepting the null-hypothesis that the two groups come from the same population. Tests with the assumption of different variances in the groups are performed. Different variances in the two populations are assumed to control for the fact that companies included in the portfolios may be less risky than companies excluded from the portfolios.

Table 7.
Results of t-tests that a group of companies included and excluded from the OFEs' portfolios come from populations with the same mean. Statistics based on yearly observations.

Year	Average yearly return		t-stats	Probability (2 tail)
	"Included" stocks	"Excluded" stocks		
2004	0.414	0.746	-2.620	0.009
2003	0.679	1.328	-3.081	0.002
2002	-0.023	-0.266	3.754	0.000
2001	-0.135	-0.314	3.854	0.000
2000	0.094	-0.127	3.334	0.001
1999	0.355	0.310	0.611	0.542
1998*	0.005	-0.040	0.393	0.695
1997*	-0.259	-0.333	1.359	0.176

First, it is interesting to note that the initial performance of the stocks selected in 1999 and those not selected are not statistically different in 1999 and the two preceding years. However, the quality of the choice seems to be confirmed by the superior performance of the included companies in 2000-2002. The average return for the selected group (there are very few variations in the selections from year to year) suggests that the managers have made good investment decisions. The superior performance of the included stocks over the excluded stocks is confirmed at the 1% level. Unfortunately, the pattern is reversed in 2003 and 2004. The included stocks average is statistically significantly lower than the average of the excluded stocks at thr 1% level.[18] Combined with the results presented in Zalewska (2005), it can be concluded that the portfolios of the OFE's have "lost their bloom" over the last two years. The fact, that the portfolios resemble the WIG market index is because the compositions of the portfolios and of the market index are very similar, and are dominated by the shares of just a few companies. However, in general, shares included in the portfolios perform much worse than those shares that have not been selected.

One might try to speculate further on the cause of the reversal in pattern. Although, the pension funds started to operate in 1999, the major investments took place in the next few years (see Table 3). The portfolios of the OFEs were rather well established from the very beginning, in this sense that once shares were selected and purchased, they stayed in the portfolio for the following years. New purchases tended to concentrate on enlarging stakes in companies already acquired and shares of new listings. Very few existing companies whose shares were not selected as "the first choice" have been included in the portfolios later. Such a strategy might first push the prices of acquired shares up and subsequently contribute to their relative stagnation. In contrast, the opposite process may be observed for the excluded companies. If this is true, it might mean that the OFEs are not as good at picking the right stocks as they are in creating fads.

To complete this brief discussion of the Polish experience I look at the correlation between how many funds include a stock in their portfolios and returns on these

[18] These results are also significant at 1% level when 1-tail test are performed.

stocks. To do so I construct a "popularity indicator" that for a given company is calculated as a ratio of the number of OFEs that have reported holding the company in their portfolios at the end of a calendar year to the number of pension funds operating at that time. That is, if a stock is included in none of the OFE's portfolios, then its popularity indicator is set to zero. On the other hand, if it is included in, say, the portfolios of all the 15 pension funds operating in December 2004, then for 2004, the popularity indicator is one. Figure 4 shows that although the period of the pension funds operation is short, three distinct periods are apparent. Years 1999-2000 are characterised by the statistically insignificant correlations. The next two years, 2001-2002, show that the popularity indicator is positively and statistically significantly (at the 5% and 1% level, respectively) with the yearly returns on stocks. However, in the 2003 and 2004 the pattern gets reversed and the more "popular" stock is, the worse its market performance is. Both 2003 and 2004 correlation coefficients are negative and highly statistically significant.

The relatively poor performance of the OFEs' equity portfolios is a matter of fact but it is hard to blame pension fund managers for such outcomes since their investment opportunities are restricted to a narrow selection of domestic assets. The underperformance, to a large extent, is the result of the enforced home bias and the inability to diversify pension funds' portfolios within the domestically available assets. This lack of diversification, however, is the effect of policies passed by the local authorities. Such policies could be justified if the potential pensioners that contribute to the pension funds' portfolios were rewarded in other ways, i.e., risking their life savings for higher goals. For instance, if the injection of vast amounts of money could help the local market to develop faster, one might argue that it would be the right policy. A more developed market could lead to a more efficient allocation of recourses and result in faster economic growth. The initial loss of some funds would be compensated with better market conditions, improvement in quality of life, or maybe even more generous payments within the PAYGO system. Unfortunately, it does not seem to be the case.

Figure 4.
Correlation between the popularity indicator defined as a ratio of the number of OFEs choosing a stock to the number of OFEs operating (as of 31December for each year) and yearly rate of return on the stock.

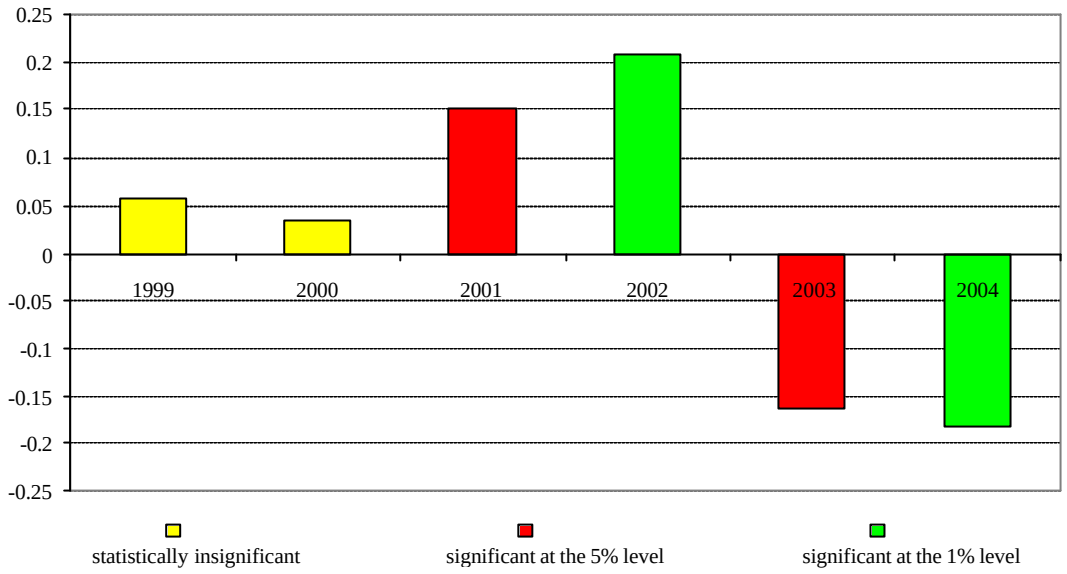
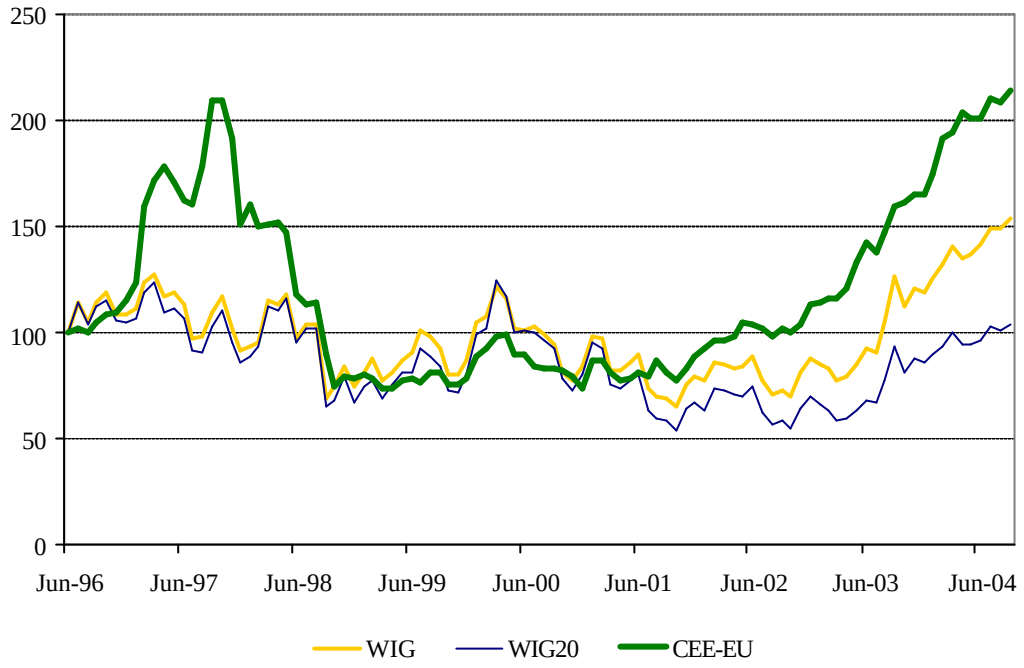


Figure 5 gives a yet another assessment of the performance of the WSE. It shows the WSE relative performance compared to the emerging stock markets operating in CEE. It plots the two main indexes of the WSE, i.e., WIG and WIG20, and the average of the main stock market indexes of the other seven post-communist countries that joined the EU in May 2004 (referred to CEE-EU). The seven stock markets operating in the post-communist countries that are currently in EU are chosen to create a diversified but consistent group of comparators. Values of the indexes are presented in US$ terms and are normalised to 100 at the beginning of the period presented, i.e., in June 1996 (when the indexes from the Baltic States start being provided by DataStream). The period is also chosen to give an overview of the relative market performance before the Polish pension funds started to operate.[19]

[19] Very similar graphs have been obtained for other currency denominations (£ and €), and when excess returns over the bank deposit rates were used.

Figure 5. Comparison of the performance of the stock market indexes in the US$ terms.



It is clear that the WSE performs better only in the period 1999 - first half of 2001, i.e., in the period when first investments of the pension funds take place. It is reasonable to conjecture that as the general public might find it difficult to guess what stocks would be selected and what not, as Figure 4 indicates, the expectations of the market to the increasing demand for shares pushed prices up. The pressure was strong enough to place the WSE at the privileged position in relation to the other CEE emerging stock markets. However, this was a short-lived phenomenon. This is the only period when the WSE outperforms the comparators. Since 2002 the situation on the WSE stabilises. The pension funds, although still investing large amounts of money in equities, target the very same companies they have initially chosen. If additional companies enlarge the pension funds' portfolios, they are mainly new offerings. Those companies that were not trusted and not selected when the first selection process took place are still unwanted, although, as Figure 3 shows, in the most recent period they are the leading performers in the market.

The development of the WSE in the period 1996-2004 is studied in detail in Zalewska (2005). Using different measures of market development I show that the WSE does not perform better than the comparator stock markets operating in the post-communist

countries that joined the EU in 2004. I also show that, the comparative performance of the WSE has been in decline since 2002, i.e., since the pension funds became the dominant players on the market. Therefore, the argument that the home bias helps the market to develop in the long run does not find support in empirical evidence.

The situation on the market appears unhealthy and suggests that intervention to remove the restrictions may be necessary. However, since stakes in selected companies are large, it will be excessively difficult for the pension funds to liquidate their long positions in these shares. At the time of entry the OFEs did not have any serious competitors, and others that might have counted were crowded out. If the pension funds grow further and remain such dominant players in the market, this will distort prices further, cause more severe illiquidity on the market and, in consequence, deter other investors. Although, the cost of exiting may be high at present, it will rise even further if the pension funds do not change their investment strategies. The costs can only rise, and will, finally, have to be faced both by the funds (i.e., pensioners) and the market.

5. Conclusions

Polish pension reforms, designed along World Bank lines, have been based on three pillars with the mandatory saving scheme being the most important. To manage compulsory contributions, pension funds have been created. Due to the restrictions imposed on investments and, in particular, restrictions on international investments, a large proportion of the pension funds' assets under management have been located in local equities. These share purchases have changed the investor decomposition of the Warsaw Stock Exchange making the pension funds the most important players. However, despite general expectations that these institutional investors would have a positive impact on the development of the stock market, the investment policies of the pension funds have had a negative impact on the market and on the value of the pension funds' portfolios. Within the group of selected stocks two subgroups are clearly distinguishable: stocks with high capitalisation and stocks with low capitalisation. High capitalisation stocks are often chosen by several, if not all or almost all, pension funds. These investments constitute to over 60% of the pension

funds' equity investments. Low capitalisation stocks are chosen by very few funds, but these investments gobble up most of the free-float of these companies. Since adjustments within the pension funds' portfolios have been small, the pension funds contribute to the creation of fads and a decline in market liquidity. This results in weak performance of the pension funds' equity investments, and if significant changes are not introduced to loosen up restrictions on international investments, even weaker performance, both of the pension funds' equity portfolios and the Warsaw Stock Exchange, as such can be expected in the future.

In this paper I argue that the emerging markets domestic-market-oriented investment policy can be bad both for the investors and development of the local stock market. Since portfolios of pension funds are not sufficiently diversified, they are exposed to high risk and suffer from low returns. At the same time the hunger of pension funds for new shares negatively impacts on the stock market development.

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