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Financial System and Equity Culture Development in Central and Eastern European Countries: The Effect of Institutional Environment

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Abstract

This paper serves as a conceptual discussion of equity culture and its development mechanism. Equity culture is a less popular source of finance in the Central and Eastern European Countries (CEECs) but yet developed in a number of developed economies. The way the CEECs will proceed is a dynamic and challenging issue to observe. We graphically display ten CEECs from our research sample and four benchmarks in terms of their institutional characteristics and thus cumulatively, we portray the status of their financial system developments and equity culture creation. The Co-Plot applied to create the exhibits, enable us firstly, to identify indicators leading to debt financing and equity financing; and secondly, to place individual CEECs not only in terms of their general financial system development credibility but also in relation to equity culture development. The presence of an efficient bureaucratic system and an institutional system with low corruption levels is a necessary condition. Therefore, if a country's government aims to start building equity culture at all levels of its corporate sector, improved quality of the bureaucratic system and low levels of corruption may enable them to achieve this.

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Financial System and Equity Culture Development in Central and Eastern European Countries: The Effect of Institutional Environment

1. Introduction

The recent economic crisis (i.e. the global financial crisis of 2008-2009) has confirmed that without adequate access to capital, firms in all types of economies suffer. The fact that the financial sector has been unable to provide adequate financing for many firms since 2008/2009 has resulted in corporate standstill or even declared insolvency of some formerly well-performing firms. As a result, most financial analysts and economists agree that the ultimate challenge for any economy at the time of such a serious economic crisis is to restore financial confidence and stability among all financial sector participants (the firms, investors, Government and financial institutions), to enable the adequate flow of capital and to facilitate the efficient functioning of different financial systems.

Capital finance is essential for firm growth and by implication for economic growth (Stoian and Filippaios, 2007). This leads to the question of how firms can best finance themselves and what types of financial systems are likely to be formed in the future. This is particularly relevant for countries with historically weak and underdeveloped financial systems, such as the transition countries of Central and Eastern Europe (hereafter CEECs). Limited availability of capital, poor access to finance and low quality financial institutions form the characteristics of weak financial systems present in the majority of transition countries (Hermes and Lensink, 2000). It is clear that without access to stable and adequate financial markets these countries' ultimate goal of catching up with their more developed counterparts is unachievable.

The current paper investigates the financial systems of the CEECs which until the 1990s were operating under a State socialist system. In any political establishment, whether democratic or socialist, progress can only be achieved if there is economic growth (Kolodko, 2000). In the late 1980's, the socialist economies of Central and Eastern Europe were experiencing serious economic, financial, social and ultimately political difficulties (Stiglitz, 1995). This resulted in the region's inability to expand, satisfy its population's social needs, attract investment and boost productivity, and ultimately resulted in the need to change the existing centralised political and economic regime.

Today, two decades after the start of their transition process from centrally planned to market oriented economies, CEECs still have to face many challenges in order to catch up with the developed systems of their Western European counterparts and other developed nations worldwide. The creation and enhancement of an efficient and sustainable financial system is without a doubt one of the key challenges (EBRD, 2006). Indeed, the underdeveloped banking system (overwhelmed with low capital, large volumes of non-performing loans to state enterprises, small branch networks, inexperienced staff and management, limited competition, etc.) and an even less developed capital markets system (with weak legal infrastructure, non-existent institutional investors, etc.) (Morelli, 2010), both legacies of the previous political regime, have impeded the financial liberalisation process and thus also the CEECs' growth and development potential.

Unlike the CEECs, more advanced economies have successfully adopted one, or the combination of, two financial system models (bank-based or equity-based) and have accordingly created corporate governance structures, established financial institutions and legislative systems which function in support of each individual system (Amable, 2003, Morelli, 2009). In an effectively and efficiently functioning bank-based system there is a significant presence of banking tradition in a country, with strong historical roots and embedded trust within the banking sector (Levine, 2002, Detragiache et al., 2006, Levine and Zervos, 1998, Beck and Levine, 2004). On the other hand, the equity-based model requires the presence of a strong and developed equity culture in a country (Kim and Kenny, 2007, Bekaert et al., 2001, Li, 2007, Bekaert et al., 2002, Smith, 2003). A number of scholars point out that in advanced forms of financial systems bank financing is often at some stage followed by equity financing (Pagano, 1993, Geschenkron, 1962). Indeed, Smith (2003) observes that bank lending and government-determined allocation of capital are currently giving way to private equity financing in many advanced economies.

The institutional environment affects the financing decision-making of firms and the direction of a financial system development overall (Peng, 2004). Scientific research (Kim and Kenny, 2007, Bakker and Gross, 2004) further confirms that the institutional environments of the banking oriented financial systems differ from the institutional environments of the equity-oriented systems. An equity-based financing system requires an institutional system characterised by low corruption, high accountability, policies protecting investor rights and an efficient bureaucracy-free system (Smith, 2003, Bekaert et al., 2001). Although transparency is also important in the banking system it does not have the same

imperative role as we see in the equity-based models. This is mainly because the private nature of most by bank financed firms and the traditional bank-client relationships based on trust are less transparency-centred (Beck and Levine, 2004, Levine and Zervos, 1998). These institutional differences point to the existence of the German-Japanese banking oriented- and the Anglo-Saxon equity oriented institutional systems.

The key aim of this paper is to explore the effect of institutional environment on financial system and more specifically on equity culture development in CEECs. In doing so, this paper makes several significant contributions to both theory and practice: Firstly, this study enriches the debate on the financial system development in transition economies and addresses the calls for more attention to this area of research (Purda, 2008; Hermes and Lensink, 2000, Nord, 2000) and in particularly the calls for more studies focusing on equity financing (Smith, 2003, EBRD, 1998). Secondly, this paper joins an emerging strand of literature on the impact of the institutional environment on business (Henisz and Swaminathan, 2008; Peng et al., 2008) and by focusing on the impact of institutional factors on financial development in transition economies addresses the call by Bekaert and Harvey (2002). Thirdly, this research puts forward policy recommendations for governments and international organisations that are concerned with the potential for equity culture development. Indeed, The World Bank and The European Bank for Reconstruction and Development have recognised that transition economies as new democratic economies have a high growth potential and therefore, have called for more scientific work on the transition type of economy (OECD, 2009).

To achieve our aim we provide a thorough literature review of the financial system development, the creation of equity culture and the effect of the institutional environment on both to conceptualise the relationship. We then proceed empirically by adopting a new methodology that allows us to graphically display the differences of institutions in the ten CEECs and then compare them with four benchmarks (UK and USA on one hand and Germany and Japan on the other) discussed above. We provide evidence not only with regard to the institutional factors that influence the development of the financial system in the CEECs but also highlight those factors that bring specific CEECs closer to the Anglo-Saxon (UK and USA) model with a well developed equity culture or closer to the German and Japanese model that relies more on the bank financing.

The remainder of this paper is organised as follows: Next sections provides an in-depth literature review discussing the key institutional factors that influence financial system development and equity culture creation. Section 3 provides the main characteristics of our

sample and briefly describes the key attributes. The following, section 4, justifies the methodological approach of this study and discusses the co-plot method applied. Section 5 presents the empirical evidence of our analysis whilst section 6 concludes the paper with some policy implications and suggestions for future research.

2. Financial Development, Equity Culture and Institutions: A Review of the Literature

2.1 The Role of Institutions in Financial System Development

The link between financial system development and economic growth has been established early in the 20th century (Schumpeter, 1911). More recently, a number of financial analysts have empirically confirmed that a more developed financial system has a positive impact on the economic growth both at the macroeconomic level (King and Levine, 1993, Beck et al., 2000, Rajan and Zingales, 2003a) as well as at the microeconomic level (Beck et al., 2005, La Porta et al., 1997) as financial constraints stemming from a less developed financial system can negatively affect growth. Despite the popularity of the topic of financial system development in discussions of economic growth, there is still little agreement on how to define it and measure it (Levine, 2002). For the purpose of this study we adopt a definition of a financial system development as proposed by the World Economic Forum (WEF). It defines financial development as the 'factors, policies and institutions that lead to effective financial intermediation and markets, and deep and broad access to capital and financial markets' (WEF, 2008, p. 3). The process of financial development depends, among other factors, on how the financial system's supporting mechanisms in a particular country are designed and established (Hermes and Lensink, 2000). This includes the type and role of financial institutions, the design of the regulatory and supervisory system, and the role of government policies that are related to controlling that particular system (Levine and Zervos, 1998, Rajan and Zingales, 2003b).

The efficiency factors that contribute to the development of an advanced financial system are of political, economic and institutional nature. Although the role of government as a financial service provider or financial regulatory body has been disputed (Beck, 2006), its role and contribution to a financial system development has been commented on by many (e.g. Strange, 1995, La Porta et al., 1999). This is because financial system development can only progress to an advanced level if political forces support and do not go against economic

and institutional reforms necessary for such progress. This viewpoint goes in line with Rajan and Zingales's (2003a) findings who point out that favourable (or unfavourable) political outlook on financial development is the main reason for cross-country differences in the quality of a financial development. In fact, it is believed that in some less developed countries financial system development has been prevented by special country interests (Hermes and Lensink, 2000). Scholtens (2000) takes the view that local politics shapes the economic and institutional conditions in a country, and through these influences the type of financial intermediaries that are able to develop and the level of efficiency they can function at. In a more recent assessment of financial systems and their functionalities, Purda (2008) calls for a compatibility between economic policies and the existing political economy in a country, which encompasses the areas of institutional quality, politics and economics. In our study, we follow the view of Scholtens (2000) and account for the political influences through institutional indicators.

Institutional quality, pointing both to legal efficiency and competent corporate governance, is a crucial pillar of an effective financial system. The certainty of legal rights of borrowers, creditors and other investors can only be secured through an enforcement of contracts and their adherence to these. Importantly, the significance of creating a sound legislative framework before considering the set-up of a particular financial system (bank-based or market-based) is according to some scholars (e.g. Monks and Minow, 2001, Levine, 2002, Kaufmann et al., 2000) essential at the early stages of a country's financial system development. Countries with good investor protection laws, competition laws and proper disclosure of information have financial systems represented by larger and broader financial markets which means better accessibility to external finance for individual firms (La Porta et al., 1997, Pagano and Volpin, 2005). Moreover, good governance practices in the financial and corporate sectors are critical for the development of an effective financial system (Kaufmann et al., 2000, La Porta et al., 1999). The studies of Klapper and Love (2004) and Francis et al. (2005) find that the quality of corporate governance is positively related to growth opportunities of firms and their need for external financing. Simply put, governance provides assurance that the market is honest, that investors make decisions based on reliable information and that management is running the enterprise for the stakeholders' benefit (Monks and Minow, 2001). Committing to better corporate practices might not be easy in less developed economies and in countries with poor state investor protection as the mechanisms to do so might not be present or are too expensive (Doidge et al., 2007). Firms that have an

access to foreign markets are less dependent on the progression of their domestic financial systems and often if they pursue better corporate practices, it may be because of the foreign country governance requirements. Drawing on the earlier literature we consider the nature of an institutional system to be an essential determinant for the type of a financial system developed in a country and we investigate the specific institutional factors that are associated with equity culture development

2.2 Equity Culture and Transition Economies

For the development of an equity-based financial system it is necessary that an *equity culture* is created (Myners, 2001). It can be said that equity culture develops alongside an equity-based financial system. Existing literature offers several definitions of the phenomenon of an equity culture. Some claim that equity culture denotes shared ownership receptive by firms and stock company formation (Bekaert et al., 2002). Others suggests that a solid equity culture means that firms are able to finance their business activities through financial assets of which share investments account for a significant proportion (Beck and Levine, 2004). Equity culture is also defined as 'the route to a wider shareholder democracy' (Myners, 2001) or even seen as an expansion of share ownership by individuals (Bilias et al., 2009). Claessens (1995) in his earlier work states that equity culture means a market economy that has a corporate sector in which individuals are enabled to participate. In some works, however, an exact definition of equity culture is missing and authors refer to a 'bundle' of definitions. For instance, Smith (2003) first defines the equity culture as the culture of stock markets themselves. Then he implies that equity culture actually represents public willingness to invest in stocks. This confuses the reader. To avoid confusion, for the purpose of this study, we draw on these earlier works yet offer our own definition as we see *equity culture* as a financing culture adopted by a country's corporate sector implying its preference for equity-based financing (built on the principle of wealth creation through shared ownership) subject to feasible market conditions.

Transition economies are characterised by their bank-based financial systems (Gehrke and Knell, 1992). The fact that equity financing has not been extremely successful as a source of capital acquirement in transition countries is not surprising. The former centrally planned systems embedded constraints and simply did not allow for the development of equity financing. It is believed that the development of equity financing as an equal form to debt

financing has been hindered due to special country interests (Stiglitz, 1999). Indeed, equity culture development supporters have had to overcome massive obstacles, such as mistrust of stock exchanges, nationalistic aversion to adopting 'Anglo-Saxon' financial techniques and resistance to sound corporate practices on which a viable public equity market depends (Smith, 2003).

Specifically, in the transition economies of Central and Eastern Europe, the former communist regimes opposed the development of stock markets, the primary financial intermediaries of equity-based financing, and thus their level of development in 1989 was comparable to the British stock markets in the 19th century (Hermes and Lensink, 2000). Indeed, only a small part of corporate investments was financed by equity (Kornai, 2006). As a result of the narrow scope of financial markets in Central and Eastern Europe, capital providers have associated firm financing in these transition countries with higher risk than in other more developed economies (Wyplozs, 2002). The disregard for transparency, medium to high levels of bankruptcy and lack of adequate business expertise and experience have been identified as the main reasons for this (Bakker and Gross, 2004). Despite considerable advances over the last decade, existing European financial markets are still functioning below their potential (EBRD, 2006). As a result, European development and particularly the transition EU economies have been losing out on jobs and growth. Economists agree that the main reason for this is the fragmentation of these markets which is driven by domestic bias, inefficient regulation and risk-averse culture. This results in an inability of many funds to become sufficiently specialised and to achieve critical mass within a (short) timescale (i.e. attracting large number of companies and investors). Therefore, the majority of firms in the CEECs have preferred traditional ways of financing such as debt financing, leasing and renting.

However, recent views point out that a combination of global and region-specific factors gives an indication that there may be a realistic potential for equity culture development in transition economies (Segal, 2009). Firstly, the recent financial crisis highlighted a number of 'cracks' in the current banking sector and the issues related to the corporate sector's over-dependence on it. Secondly, the economic improvement demonstrated in the majority of transition economies prior to the financial crisis (e.g. removed restrictions on foreign ownership, improved accounting and information standards) and in many cases the transition countries' ability to limit the negative consequences caused by the financial crisis have been identified as reasons to believe that the 'promotion' of equity financing as a direct

competitor to debt could be plausible (Djankov and Murrell, 2002). Cumulatively, these events could be seen as potential catalysts for the development of an equity culture in transition economies.

In the case of the transition economies of Central and Eastern Europe the following has to be noted. Firstly, the reform process in the CEECs is still ongoing. Although the CEECs succeeded in complying with the economic requirements imposed upon them by the European Union (EU), the financial liberalisation process is far from being finished (EBRD, 2009). This provides an opportunity for correct economic policy shaping which could be potentially geared towards supporting an equity culture in these countries. Secondly, events such as privatisation of formerly state owned businesses, the establishment of the Euro currency (in some of the CEECs) and the shift in the pension systems from state-owned to individual retirement accounts and defined contribution pension plans (just to name a few) have prompted the 'equity culture' supporters to raise their hopes. Thirdly, the substitution of top-down corporate governance systems based on central planning with corporate governance systems that react to and base their decisions upon market signals is seen by some as a signal for the change of direction of these countries' financial systems (Djankov and Murrell, 2002). Fourthly, the increased interest of foreign investors in the CEE region has a significant impact as 'equity culture' emerges where a strong investor base is. The increased interest of the foreign investors has been prompted by the downturn in the mature equity markets. Investors are therefore looking for new and exciting markets with substantial growth and potential. The CEECs might not be the centre of their investment activities (with the BRIC countries taking the prime) but the spill-over effect may have an economic policy changing impact. Lastly, but perhaps most importantly, the majority of the corporate sector in the CEECs is dissatisfied with the financing services their financial systems offer (EBRD, 2008b). Indeed, a strong increase in the demand for sophisticated financial services in the rapidly expanding economies of Central and Eastern Europe has been noted (EBRD, 2006). Many firms in the CEECs feel that the limited availability of finance is the major constraint to their growth and development as many have their bank loan applications declined or receive only part of what they requested (Scholtens, 2000). Furthermore, due to limited competition at the local level, banks are able to overcharge for their capital raising services, with the effect of locking companies into long-term relationships. The banking sector also has started to require an increased amount of information on business propositions before granting loans. This trend could remove an advantage of bank finance (because it was quick

and easy to arrange). Klapper et al. (2002) find that the main sources of dissatisfaction firms express are red tape, poor services, excessive bank charges and the inappropriateness of solutions offered.

From the research perspective, international authorities (e.g. The World Bank, The European Bank for Reconstruction and Development) have recognised that transition economies as new democratic economies have a high growth potential and therefore, have called for more scientific work on the transition type of economy (OECD, 2009). Indeed, since the transition process started, financial systems in these countries have started to be analysed, transition processes in individual countries have been evaluated and some downfalls of the existing systems rooted in the inherited legacy of the previous regime have been identified (Bakker and Gross, 2004, Underhill, 1995, Doyle and Walsh, 2005). However, a number of authors have identified more areas that need further clarification and gaps that require additional research.

For instance, Purda (2008) points out that there is a need for further research on transition countries (e.g. transition economies of the CEECs) as 'caution should be used in extending the results from research on financial systems of developed economies with well-functioning financial markets to the context of transition and post-transition countries'. Bekaert and Harvey (2002) stress the requirement for a better understanding of the combination of factors (macro-economic and institutional) influencing financial system reforms in transition markets and Klapper and Love (2003) emphasise the need to re-focus the research in transition economies from country-level to firm-level, or a combination of these two levels. Pinkowitz et al. (2002) highlight the need to analyse corporate governance mechanisms when assessing financing choices of firms, in particular equity capital, in transition economies. Fisher et al. (1997) and later on Kornai (2006) add at the corporate level, the motivations behind firm financing choices should be more closely examined. Bakker and Gross (2004) call for more attention specifically to the transition economies of Central and Eastern Europe as 'these markets are particularly interesting since they provide us with a number of comparable, yet in many interesting respects, different cases'. Also, the need to provide empirical knowledge on factors affecting the CEECs' future financial systems' developments and direction has been accentuated by many (e.g. Hermes and Lensink, 2000, Nord, 2000) with some particularly stressing the importance of an assessment from the equity financing perspective (Smith, 2003, EBRD, 1998). However, to our knowledge, in the case of the transition literature, the attention to equity culture as a

phenomenon coexisting in a financial system with a strong capital market sector, the effect of its limited existence in the transition economies and viable suggestions for its possible development have been neglected.

3. Data and Sample Description

In our research, to identify the relationship between financial system and equity culture development and the institutional environment, we adopt a quantitative approach and use data selected from various secondary sources. To investigate institutional environments of individual countries we use data from the International Country Risk Guide (ICRG), a valuable source of data on institutional quality that has been used in previous investigations on the impact of institutions on business in transition economies (Stoian and Filippaios, 2008; Filippaios and Stoian, 2007). Then, to investigate the institutional environments in the CEECs even deeper we examine the EBRD transition indicators database. These indicators have been used consistently in the EBRD *Transition Reports* (1998, 2006, 2008, 2009*)* to highlight the CEECs' progress in their process of transition to market economy and have also been included in various studies on business in transition economies (Stoian and Vickerman, 2005; Bevan et al., 2004).

We first provide an overview of our sample and create CEECs' profiles on the status of their financial system developments with the focus on equity culture creation. We then apply in the next section a, relatively new, clustering method – the Co-Plot method (Gilady et al., 1996, Raveh, 2000a, Talby et al., 1999), which enables us to observe the positioning of individual CEECs in relation to each other and four benchmarks – Germany, Japan, UK and USA on a two-dimensional scale and to find patterns with respect to the impact of institutional factors on equity culture development in the CEECs.

As discussed in detail in the literature review, the institutional environment facilitates or hinders the development of a specific financial system. While equity-based systems require institutional systems which guarantee the protection of individual shareholders, efficient bureaucracy and low corruption leading towards high transparency, the bank-based models necessitate the presence of institutional reforms and policies geared towards the co-ordination within the banking sector and its regulation. To assess the institutional quality in our sample countries, as we mentioned above, we examine two sets of data. Firstly, we

employ the political risk components of ICRG institutional data, which enables us to assess the institutional quality of both the CEECs and the benchmarks. Secondly, to consider the institutional progress specifically in the transition countries, we include a smaller set of EBRD transition indicators in our analysis.

The first set of variables (*Government stability*, *Socioeconomic conditions* and *Investment profile*) can have a minimum number of 0 points assigned and a maximum 12 whereas the remaining variables can have a minimum number of 0 points assigned but maximum 6. In every case the lower the risk point total, the higher the risk, and the higher the risk point total, the lower the risk. *Government stability* is a measure of a government's unity, legislative strength and popular support. *Socioeconomic conditions* evaluate socio-economic pressures at work (in particular unemployment, consumer confidence, poverty) that could constrain government action or lead to social dissatisfaction. *Investment profile* assesses factors affecting the risk to investment that are not covered by other political social or financial risk components (in particular contract viability, profits repatriation, payment delays). *Corruption* measures a political threat to investment as it can distort economic and financial environments, reduce the efficiency of a government and businesses and introduce instability into the organisational processes. *Law and order* comprises two subcomponents ('law' and 'order'). While the former assesses the strength and impartiality of a country's legal system, the latter is concerned with the application of law and effective sanctioning. *Democratic accountability* reflects on the type of governance employed in each country. ICRG identifies five different types of governance (alternating democracy, dominated democracy, de facto one-party state, the jury one-party state, autarchy) and assigns the highest number of risk points to alternating democracies (low risk) and the lowest number of risk points to autarchies (high risk). *Bureaucracy quality* is another indicator of a country's institutional strength. Countries demonstrating high points on this variable run bureaucracy systems independent from political pressures with established effective bureaucratic mechanisms.

For the assessment of the institutional quality in the transition economies we also apply transition indicators from EBRD as follows: *Large scale privatisation* (an indicator on the process of transferring state ownership of large firms into private hands), *Small scale privatisation* (an indicator on the process of transferring state ownership of small firms into private hands), *Banking reform and interest rate liberalisation* (an indicator on the progress

of banking laws and regulation), *Securities markets and non-bank financial institutions* (an indicator on the progress of securities laws and regulation), *Governance an enterprise restructuring* (an indicator on the progress of corporate governance). Individual scores indicate the following: A score lower than 1.5 – a country has undergone only a few reforms (achieved limited progress), a score between 1.5<2.5 – a country has improved its position moderately (achieved moderate progress), a score between 2.5<3.5 – a country has demonstrated some significant actions (achieved significant progress), a score between 3.5<4.5 – a country has experienced a substantial improvement (achieved substantial progress), a score higher than 4.5 – a country has reached the levels of advanced economies (achieved a progress comparable to advanced economies).

As a first step we apply ANOVA to assess the variance of institutional data for the CEECs and our four benchmarks. We find that in the case of the CEECs all groups have the probability level at 1% level which suggests that data differs substantially among individual countries for the period under examination (1996 – 2008). The same significance level is present in most observations for the benchmarks' group with three exceptions: *Government stability*, *Investment profile* and *Bureaucracy quality.*

The ANOVA table (Table 1) displays very similar levels for the developed countries, with the UK and USA performing slightly better on the indicators of law and order, corruption and bureaucracy quality. The CEECs' group institutional quality indicators are on average lower than those of our four benchmarks with Bulgaria and Romania displaying the lowest values in most cases. Interestingly, Estonia scores on average lower on the variable of Investment Profile than most other CEECs, however its value is close to that of the UK.

Table 1: ANOVA Table: Indicators of Institutional Quality

Institutional Quality Indicators (I)		Government Stability	Socioeconomic Conditions	Investment Profile	Corruption	Law and Order	Democratic Accountability	Bureaucracy Quality
No.	Country	Mean	Mean	Mean	Mean	Mean	Mean	Mean
1	Bulgaria	8.36	3.81	10.29	2.71	3.85	5.24	2.00
2	Czech Rep	7.37	7.18	10.18	3.21	5.15	5.29	3.00
3	Estonia	8.92	6.87	9.93	3.54	4.00	5.08	2.61
5	Hungary	8.33	6.19	10.49	3.78	4.64	5.88	3.59
7	Latvia	8.76	5.85	10.01	2.28	4.92	5.00	2.38
8	Lithuania	7.91	6.51	10.01	2.51	4.00	5.30	2.38
9	Poland	7.89	5.38	10.46	3.08	4.41	5.88	3.05
10	Romania	8.34	4.40	8.33	2.67	4.24	5.78	1.00
11	Slovakia	8.07	6.86	9.97	3.00	4.38	5.56	3.06
12	Slovenia	9.63	6.51	10.47	3.28	4.67	5.05	3.00
	Total	8.36	5.96	10.01	3.01	4.43	5.41	2.61
	F statistics	3.49	15.27	2.65	5.28	10.20	10.00	200.43
	Prob > F	0.0007	0.0000	0.0077	0.0000	0.0000	0.0000	0.0000
4	Germany	8.94	9.98	11.14	4.21	5.36	5.30	3.97
6	Japan	8.89	8.88	10.82	3.33	5.31	5.10	3.97
13	UK	9.12	7.51	9.67	4.59	5.83	5.84	4.23
14	USA	9.39	8.17	10.53	4.67	5.48	5.82	4.00
	Total	9.09	8.63	10.54	4.20	5.50	5.52	3.99
	F statistics	0.32	12.60	1.64	17.02	3.57	15.74	1.6
	Prob > F	0.8099	0.0000	0.1918	0.0000	0.0207	0.0000	0.202

Source: ICRG (2001) and Author's ANOVA performed in STATA.

The ANOVA table (Table 2) of the transition institutional indicators indicates that there are significant differences among the CEECs as all indicators are significant at 1% level (Table 2). While Czech Republic, Estonia, Hungary and Slovakia's average values for the institutional data are the highest indicating a substantial improvement of the institutional indicators, Bulgaria, Romania and Slovenia are the worst performing countries in the group. In particular, Czech Republic, Estonia and Hungary perform the best on the indicator of large scale privatisation, and Estonia, Poland, Slovakia and Slovenia show the highest values on the indicator of small scale privatisation. In terms of the banking reform we observe that Czech Republic, Estonia and Latvia demonstrate a proactive reform approach. On the other hand, the indicator of the presence of securities markets and non-bank financial institutions shows on average higher values in the case of Estonia, Hungary, Poland and Slovakia.

Table 2: ANOVA Table: Transition Indicators of Institutional Quality

Institutional Quality Indicators (II)		Large scale privatisation	Small scale privatisation	Banking reform & interest rate liberalisation	Securities markets & non-bank financial institutions	Governance and Enterprise restructuring
No.	Country	Mean	Mean	Mean	Mean	Mean
1	Bulgaria	3.51	3.57	3.16	2.28	2.46
2	Czech Rep	4.00	3.23	3.92	2.85	4.30
3	Estonia	4.00	4.33	3.69	3.18	3.31
5	Hungary	4.00	4.30	3.18	3.64	3.38
7	Latvia	3.33	4.23	3.41	2.67	2.85
8	Lithuania	3.49	4.25	3.26	2.59	2.87
9	Poland	3.30	4.33	3.38	3.54	3.31
10	Romania	3.23	3.57	2.85	2.23	2.18
11	Slovakia	3.92	4.33	3.23	3.05	3.23
12	Slovenia	2.97	4.33	3.25	2.70	2.85
	Total	3.58	4.05	3.33	2.87	3.07
	F statistics	19.34	88.04	9.28	28.41	75.40
	Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000

Source: EBRD (2008a) and Author's ANOVA performed in STATA.

4. Methodology

Proceeding a step further into examining the relationship between institutional environment and financial system and equity culture development we apply a co-plot methodology. Classical multivariate statistical analysis methods, such as the Principal Component Analysis (PCA), Correspondence Analysis (CA) or Multidimensional Scaling (MDS), analyse variables and observations separately (Talby et al., 1999). However, a relatively new clustering method designed for multi-criteria analysis – the Co-Plot method – has the advantage of analysing variables and observations simultaneously and in a simple manner (Raveh, 2000b, Segev et al., 1990, Raveh, 2000a). The method produces three results. Firstly, it shows similarity among data (i.e. decision-making units – DMUs) by the composite of all criteria (i.e. variables) involved; secondly, it gives the structure of correlations among the variables; and thirdly, it provides mutual relationships between the data and the variables (Raveh, 2000a).

The Co-Plot method has been applied widely: in an exploratory study of national versus corporate cultural fit in mergers and acquisitions (Weber et al., 1996), in an analysis of the 1980-1990 computers (Gilady et al., 1996), in a car selection problem analysis (Raveh,

2000a), in a comparative study of the Greek banking system (Raveh, 2000b), and as an exploratory study for suggesting a methodology for presenting data envelopment analysis (DEA) graphically (Adler and Raveh, 2008). The application of the Co-Plot method for the analysis of the structure of the MBA programmes in the UK and the USA (Paucar-Caceres and Thorpe, 2005, Segev et al., 1990) has been recently criticised by Mar-Molinero and Mingers (2007). Their findings point out that the Co-Plot method is inappropriate for zero/one type (i.e. dichotomous) variables. Our study does not contain such type of variable and therefore, we deem the Co-Plot method viable for our considerations.

The Co-Plot is a graphical display technique useful for visual inspection of data matrices such as $X_{n\times k}$. The data – the decision-making units (DMUs) are displayed as n points and the variables are shown as k arrows relative to the same axis and origin. Co-Plot records the observations in a manner that similar DMUs are positioned closely on the map. DMUs belonging to the same group (cluster) possess similar characteristics and behave similarly. The Co-Plot technique enables the simultaneous study of DMUs and variables by sequentially superimposing two graphs – one for points (i.e. DMUs) and the other one for arrows (i.e. variables) (Adler and Raveh, 2008). The further an observation is located along a particular arrow, the more efficient the DMU is with respect to that ratio. In addition, Co-Plot also identifies extreme outliers. Raveh (2000a) points out that these can be a sign of data measurement errors, lack of homogeneity amongst observations or they can be used to identify unnecessary variables.

Co-Plot has four stages: two preliminary treatments of the data matrix $X_{n\times k}$ – the standardisation of data and the measurement of distance between cases; and two subsequent stages – the production of a two-dimensional representation of the data and the drawing of the variables into the space of the observations. A brief methodological explanation follows[2].

a) The Standardisation of Data

In order for the variables to be treated equally, $X_{n\times k}$ is normalised into $Z_{n\times k}$. The elements of $Z_{n\times k}$ are deviations from column means ($\bar{x}_{.j}$) divided by their standard deviations (S_j):

$$Z_{ij} = (x_{ij} - \bar{x}_{j}) / S_j$$

b) The Measurement of Distance between Cases

[2]For a detailed Co-Plot methodology see Raveh (2000a), Raveh (2000b) and Adler and Raveh (2008).

In this stage a measure of dissimilarity $D_{il} \geq 0$ between each pair of observations (rows of $Z_{n \times k}$) is chosen. A symmetrical $n \times n$ matrix (D_{il}) is produced from all the different pairs of observations. The city-block distance (i.e. the sum of absolute deviations) is used as a measure of dissimilarity:

$$D_{il} = \sum_{j=1}^{k} \left| Z_{ij} - Z_{lj} \right|$$

c) The Creation of a Two-Dimensional Representation of the Data using the MDS Method

The matrix D_{il} is recorded using the Multi-Dimensional Scaling (MDS) method. The algorithm produced by this method plots the matrix D_{il} into Euclidean space in such a way that similar observations (i.e. observations with a small dissimilarity between them) are close to each other on the Co-Plot, and the dissimilar observations are distant from each other on the Co-Plot map.

Co-Plot uses Guttman's (1968) Smallest Space Analysis (SSA) out of the group of MDS methods. SSA uses the coefficient of alienation θ as a measure of goodness-of-fit. The coefficient of alienation determines the quality of the two-dimensional Co-Plot map. The smaller the coefficient, the better the output; and all values under 0.15 are deemed good (Adler and Raveh, 2008).

d) The Presentation of Variables into the Space of Observations

In the last stage of the Co-Plot method, variables k are displayed on the Euclidean space obtained in stage 3. Talby et al. (1999) state that this is the most interesting part of Co-Plot. Here, each variable k is represented by an arrow j. The arrows emerge from the centre of gravity of the n points. The maximal correlation between the actual values of the variables and their projections on the arrow determine the direction of the arrow. The length of the arrows is undefined. Arrows associated with highly correlated variables will point to the same or similar direction. Furthermore, individual observations with a high value in a particular variable will be positioned around the space where the arrow points to, while observations with low value in that particular variable will be at the other side of the Co-Plot map.

Furthermore, in this stage, k individual goodness-of-fit measures are obtained for each of the k variables separately. These are the magnitudes of the k maximal correlations. The gained correlations suggest whether to keep or eliminate certain variables, as variables with

low correlations do not fit into the graphical display, and therefore, have to be removed. Raveh (2000a) states that the higher the variable's correlation, the better the variable's arrow represents the direction and the order for the projections of the *n* points along the rotated axis. This also points to the high explanatory power of such variables if they are used together to form a cluster.

5. Empirical Analysis

This section benchmarks and clusters the CEECs with regard to their financial system development. We focus on the examination of conditions that contribute to the development of an equity culture. We apply a relatively new clustering method, discussed in detail in the previous section, the Co-Plot method (Gilady et al., 1996, Raveh, 2000a, Talby et al., 1999), which enables us to observe on a two-dimensional scale the positioning of individual CEECs in relation to each other and four benchmarks – Germany, Japan, UK and USA. This method enables us to observe the *process* of development of various institutional factors affecting equity culture in the CEECs as we examine several years in the 1996 – 2008 period.

In order to present the evolution of clusters in a robust yet reader-friendly way for a continuous period of twelve years we pick only four years, i.e. 1996, 2000, 2004 and 2008. The justification for the selection of these specific years is the following: Firstly, year 1996 is the first year of our research period. Transition literature (Brown, 1999, Lavigne, 1999, Stiglitz, 1997) suggests that despite the fact that the political transition took place in the early 1990s, institutional transformation and system democratisation was in 1996 considered to be still in its early days. Secondly, year 2000, a mark of a transitional decade when CEECs were actively preparing to join the European Union (EU) by increasing the transparency of their economic policymaking and financial institutions and strengthen their financial systems overall (Nord, 2000). In the aftermath of the 1999 Helsinki European Council all CEECs were confirmed to join the EU in the future, and therefore they were making efforts to progress towards reforms (Stoian, 2004). Djankov and Murrell (2002) also point out that 2000 was a year of increased trade activity as foreign direct investment (FDI) levels went up across the Central and Eastern European (hereafter CEE) region. Thirdly, year 2004 was the year of EU's enlargement eastwards. Eight CEECs joined the EU and two more were actively preparing to enter in the three coming years. Lastly, year 2008 is the last year of our research period. By 2008 all CEECs have become EU members and have accomplished all

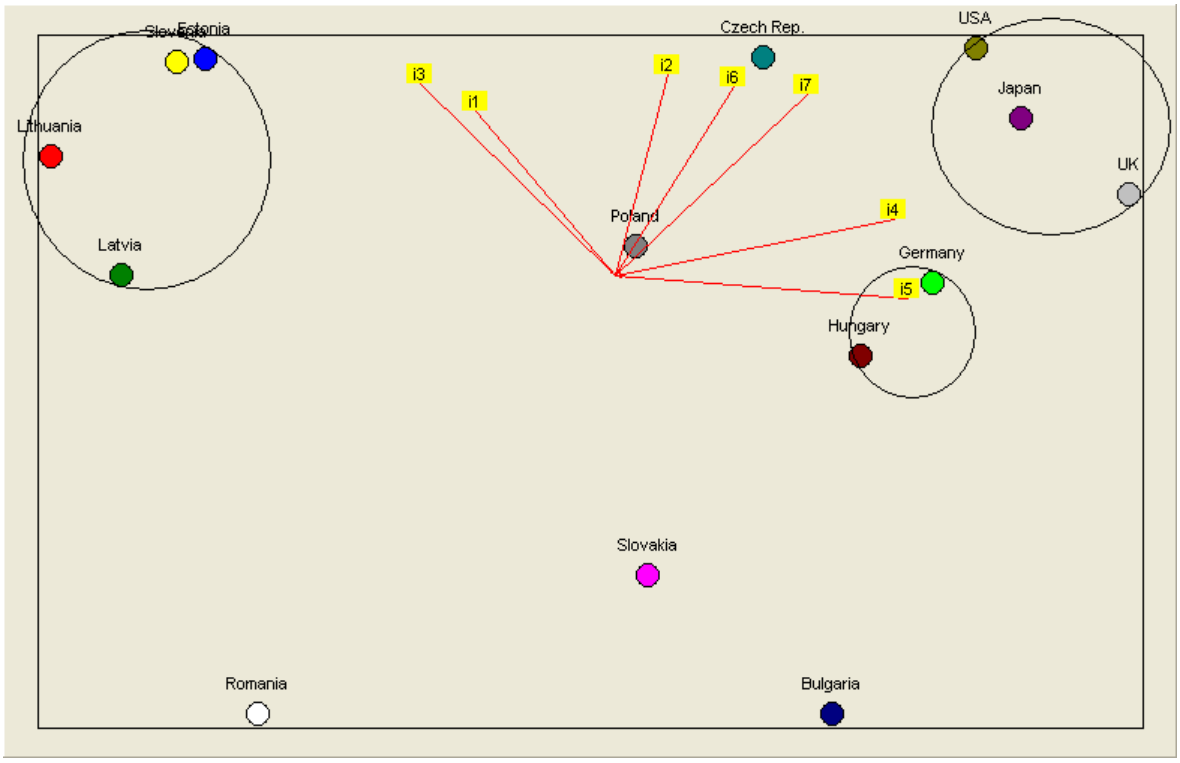
the major transition reforms as directed by the EU (Schwab and Porter, 2008). In this year, the Czech Republic – as the first CEEC – was taken off the list of transition countries and was awarded a status of a developed European economy. This is also the last year for which we have consistent data available.

5.1 Quality of the Institutional Environment

We examine data on institutional quality in the CEECs and the four benchmarks. From the ICRG database we select seven institutional variables that we see relevant in evaluating financial system development and an equity culture development. We expect these variables to demonstrate institutional differences between those that support the existence of equity-based system and those that facilitate the functioning of bank-based financial systems: We choose the indicators of *Government stability* ***(i1)****, Socioeconomic conditions* ***(i2)****, Investment profile – (****i3****), Corruption* ***(i4)****, Law and order* ***(i5)****, Democratic accountability* ***(i6)****, Bureaucracy quality* ***(i7)*** to distinguish between different types of institutional environments with the liberal market institutional environment and co-ordinated market institutional environments being the two differentiating institutional prototypes.

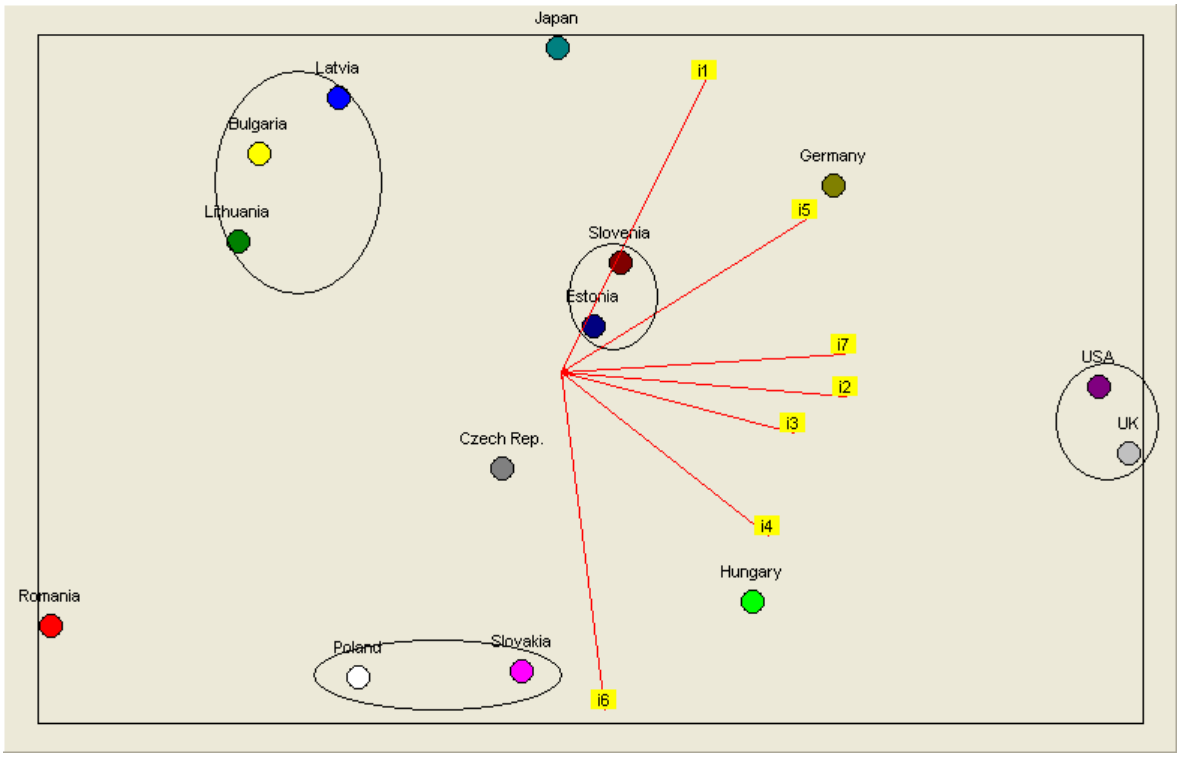
We evaluate the total set of $n = 14$ countries with measurements on $i = 7$ variables for each individual year of the 1996-2008 period (Fig. 1, 2, 3 and 4 respectively). The raw data, a $X_{14 \times 7}$ matrix is submitted to Co-plot. With all 14 countries the coefficient of alienation is 0.14 for years 1996, 2000 and 2008, and 0.15 for year 2004 indicating a reliability of 85 percent and above. The average of correlations is 0.79 which signals a positive contribution of all seven variables.

Fig. 1. Quality of Institutions 1996



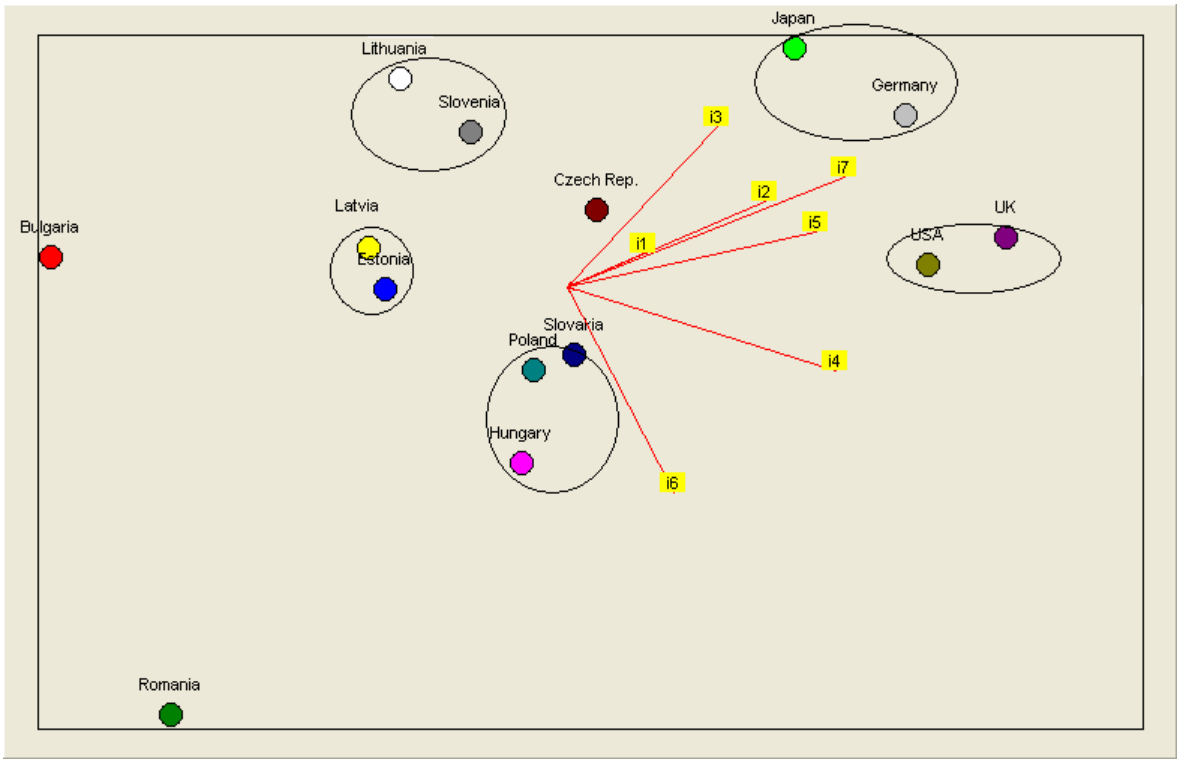
Source: Author's Own Calculations

Figure 2. Quality of Institutions 2000



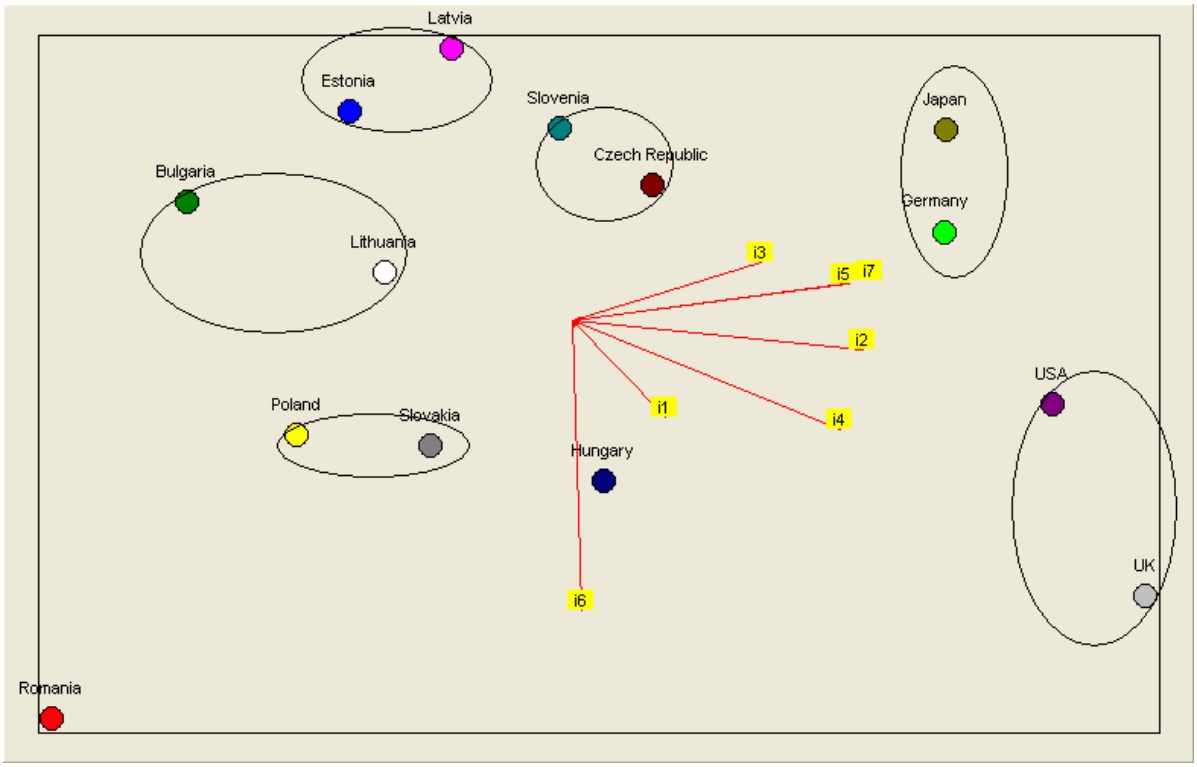
Source: Author's Own Calculations

Figure 3. Quality of Institutions 2004



Source: Author's Own Calculations

Figure 4. Quality of Institutions 2008



Source: Author's Own Calculations

We find that Co-Plots exhibit several clusters for the 1996-2008 period. Although our four benchmarks are positioned in every year of observation on the same side of the graphical display, in no time observation they form a single cluster. This is what we expected as it is a proof of a presence of differing institutional systems in the benchmark countries. The UK and the USA are grouped together and this cluster exhibits high values for law and order, corruption and bureaucracy quality – three prerequisites of institutional transparency. Germany and Japan display slightly lower values on the same attributes and form a cluster on their own. Furthermore, the second cluster of Germany and Japan also performs better on variables displaying better socio-economic conditions and a higher investment profile. This is consistent with the identification of institutional characteristics in the Varieties of Capitalism theory.

Within the CEEC's group there are variations not only in terms of the overall quality of their institutional environments but also relating to which group of benchmarks (UK and USA or Germany and Japan) individual CEECs follow. Firstly, the Czech Republic is in 1996 the best performer on institutional variables in comparison to other CEECs. The values on democratic accountability and bureaucracy quality are especially high. The investment profile indicator also remains one of the strongest among the CEECs for the rest of the research period. Similarly, Hungary displays in 1996 the presence of a reputable legal system, by 2000 the corruption levels improve and by 2004 democratic accountability achieves higher values. By 2008, due to its improvement in corruption and the increased levels of democratic accountability, Hungary secures a position of one of the better institutionally performing CEECs. From the institutional quality perspective the ascending trend in these two CEECs suggest the presence of an institutional environment feasible for the development of an advanced financial system. However, while the Czech Republic seems to follow the path of Germany in terms of its institutional characteristics, Hungary's positioning closer to the UK suggests a different trend of an institutional development.

Secondly, despite the fact that in 1996 Slovakia and Poland are far from being co-members of one cluster (Poland displays average values for the majority of institutional variables while Slovakia was an underperformer) by 2000 these two countries join the same cluster characterised by high to above average values for democratic accountability. By 2008, however, the position of this cluster moves closer to the centre of gravity suggesting the presence of more average values across all chosen institutional variables. Although the indicators of democratic accountability and corruption suggest an improvement of the

institutional environment and position these two CEECs to the direction of the UK's institutional system, the low quality of bureaucracy and average levels for the law and order indicator do not support its positioning as close to this benchmark as we saw in the case of Hungary.

Thirdly, Estonia, Latvia, Lithuania and Slovenia are interchangeably joining and leaving mutual clusters. Co-Plot adjusted to examine the CEECs without the direct comparison to the benchmarks reveals a closer position of two countries in particular: Estonia and Slovenia. According to the graphical display the corruption levels are lower compared to Latvia and Lithuania and the bureaucracy quality has scored better when compared again to the same two countries. This suggests an improvement of institutional quality in Estonia and Slovenia and institutional stagnation in Latvia and Lithuania. Therefore, from the institutional perspective point of view, Estonia and Slovenia appear to have an institutional advantage over Latvia and Lithuania. The same graphical display suggests Estonia following path similar to Slovakia, Poland and Hungary (benchmarks UK and USA) and Slovenia following the path of Czech Republic (benchmarks Germany and Japan).

Fourthly, Bulgaria and Romania are the weakest performers on institutional indicators. This suggests a limited improvement of the institutional environment in these countries. Firms seeking equity financing in these two countries face high transaction costs due to the low institutional quality. Therefore, advanced sources of financing, such as equity seem to be an unfeasible option to most Bulgarian and Romanian firms.

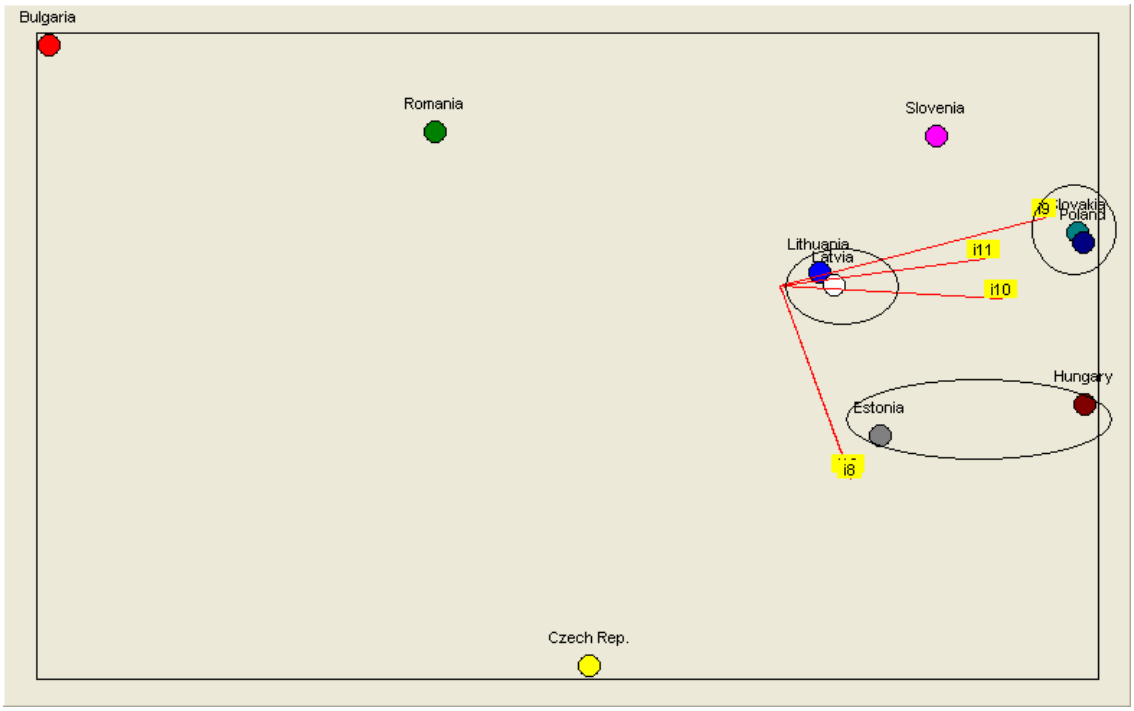
5.2 Transition Data on the Quality of Institutions

In this section more institutional data related to the transition process is examined to supplement the institutional environment analysis performed above. The EBRD transition data on the progress of the institutional advancement of the CEECs provides information on: *Large scale privatisation* ***(i8)****, Small scale privatisation (****i9****), Banking reform & interest rate liberalisation* ***(i10)****, Securities markets and non-bank financial institutions* ***(i11)****, Governance and enterprise restructuring* ***(i12)***. Privatisation, FDI, financial liberalisation and corporate governance factors vastly shape the characteristics of an institutional environment in transition economies (Choi and Jeon, 2007) and therefore play a vital role in our assessment of the quality of the institutional environment in the CEECs. These EBRD institutional

indicators enrich our discussion on the different varieties of institutional systems that are the reason for and continue developing alongside bank-based and equity based financial systems.

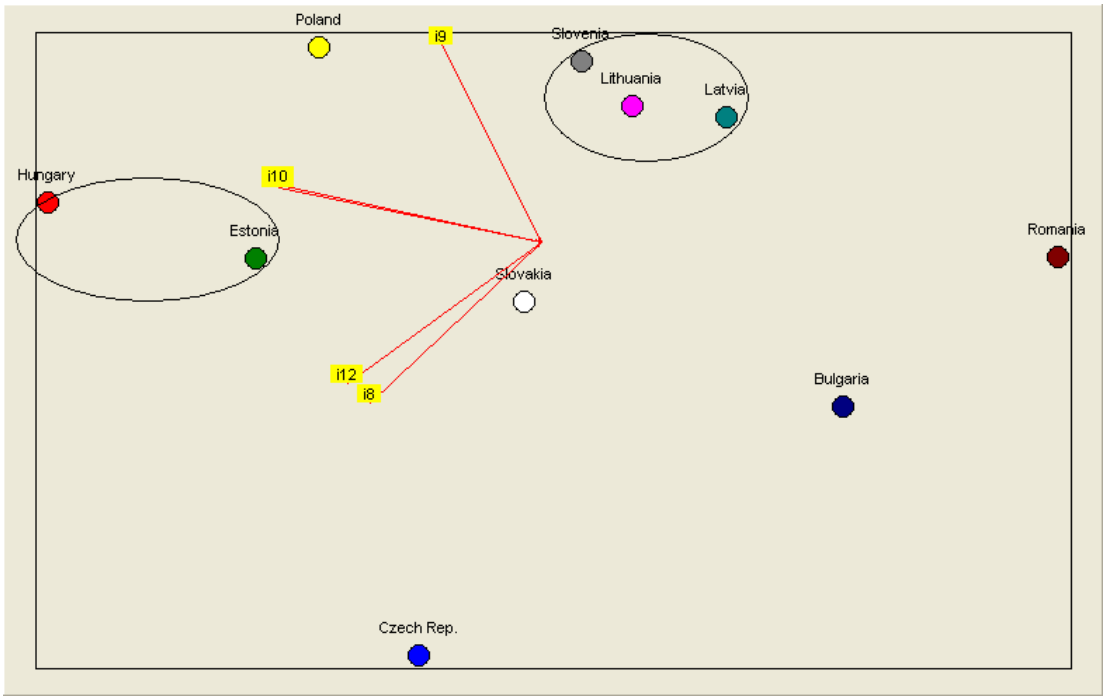
In this case we evaluate the total set of n = 10 CEECs (as there are no relevant data available for our four benchmarks) with measurements on i = 5 transition variables for each individual year (Fig. 5, 6, 7, 8). The raw data, an $X_{10 \times 5}$ matrix is submitted to Co-plot. With all 10 countries the coefficient of alienation is 0.11 for years 1996 and 2008, 0.07 for year 2000 and 0.13 for year 2004 indicating a reliability of 87 percent and above. The average of correlations is 0.85 which indicates a positive contribution of all four variables.

Fig. 5. Quality of Institutions (Transition Data) 1996



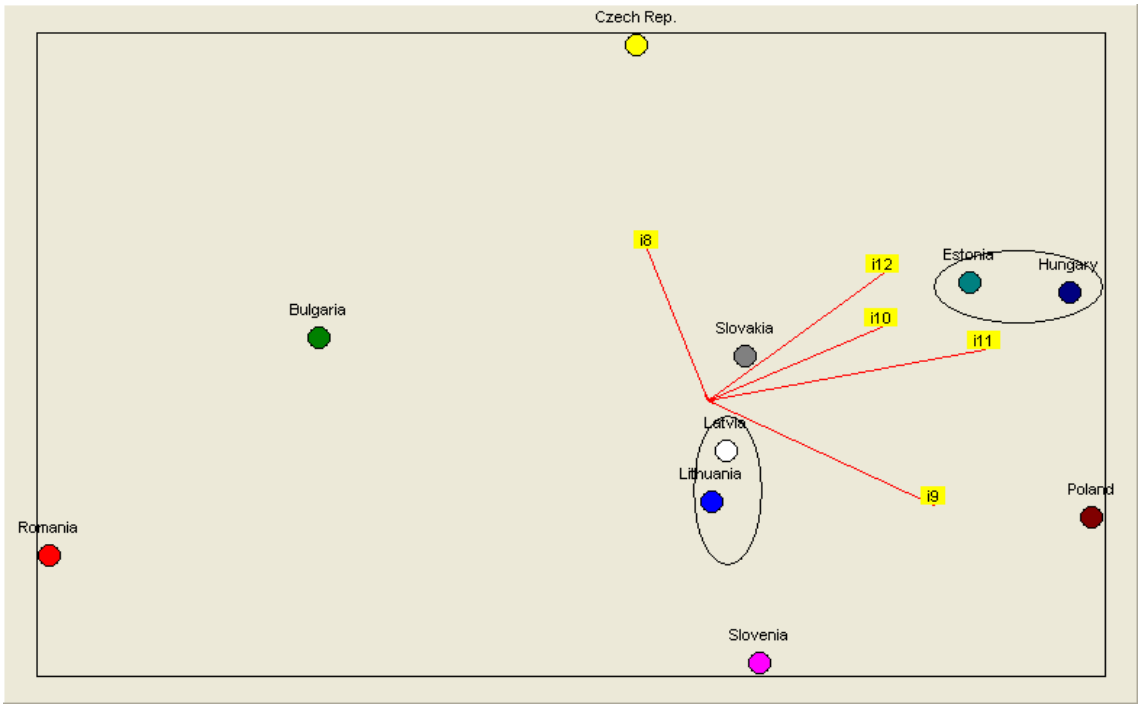
Source: Author's Own Calculations.

Fig. 6. Quality of Institutions (Transition Data) 2000



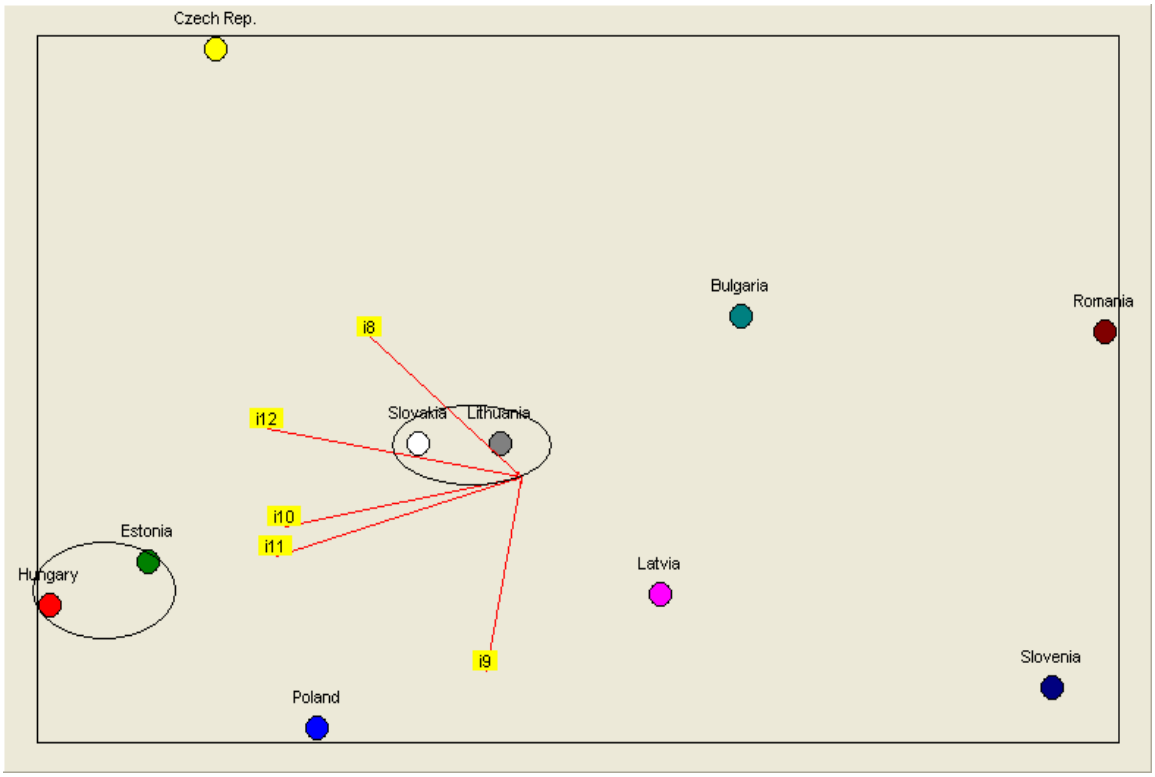
Source: Author's Own Calculations.

Fig. 7. Quality of Institutions (Transition Data) 2004



Source: Author's Own Calculations.

Fig. 8. Quality of Institutions (Transition Data) 2008



Source: Author's Own Calculations.

The Co-Plot display confirms that Czech Republic, Hungary, Estonia and Poland are the strongest performers on transitional-institutional indicators. Czech Republic and Poland do not belong to the same cluster as Hungary and Estonia. While the former exhibits a higher proportion of large scale privatisation in all time observations than any other of these four CEECs and also scores high on the governance and enterprise restructuring indicator, the latter performs extremely well on the small scale indicator in 1996 but other indicators start performing better after 2000. In the case of Hungary and Estonia small scale privatisation is prevalent and a steady performance of all the other indicators is present since 1996.

Czech Republic's large scale privatisation efforts result in performance typical of advanced industrial economies where more than 75 per cent of enterprise assets are in private hands with effectively functioning corporate governance (EBRD Transition Report, 2008). If these 'private hands' have a foreign nature, the Czech government statistical data (Czech Republic Statistical Office, 2008) states that they come from Germany, Italy, Austria, the USA and France (the particular order applies). Hungary and Estonia, and Poland, on the other hand, perform better on the small scale privatisation. In these countries the privatisation of small companies with tradable ownership rights is complete by 1996 and there is no state

ownership of state enterprises by 2000. By the end of the same year, more than 50 percent of state-owned enterprises are in private hands and there is also an improvement in corporate governance. Furthermore, by year 2004 prudential supervision and regulation are in place with significant lending to private businesses and significant presence of private banks. By 2008 also substantial financial deepening is noted (EBRD Transition Report, 2008).

Based on the above information we can deduce that Czech Republic, Hungary, Estonia and Poland progressed better in their transition process in terms of their institutional environments than other CEECs from our research sample. A growing institutional support for the banking sector together with a prevalent source of FDI from host countries known for their bank oriented financial systems (e.g. Germany, Austria, Italy) can be identified as partial reasons for a bank oriented systems in these CEECs. However, in the case of Hungary and Estonia a strong presence of non-bank financial institutions could be a sign of a growing demand for other than bank financing and thus the sound banking sector could be seen just as a preparation for the entry of a more advanced form of corporate financing - equity financing. Therefore, at this stage, we maintain that the developed stage of the institutional sectors in Czech Republic, Hungary and Estonia serves as a predisposition for sound financial systems development, whether bank or equity oriented.

Although the other four CEECs - Latvia, Lithuania, Slovakia and Slovenia do not form one single cluster in any observations, they interchangeably become cluster co-members in different years and remain in a close position on the graphical display. These countries share the characteristics of an advanced small scale privatisation with privatised firms possessing individual ownership rights (EBRD, 2008b). By 2000 all four countries make substantial progress in the establishment of bank solvency and in the framework for prudential supervision and regulation. In this year the differences in institutional transition become more visible between these four countries. While Slovenia stagnates in the transition and displays the same levels achieved in 2000 until 2008, Latvia, Lithuania and Slovakia make a better progress. While these three countries improve on the banking reform and interest rate liberalisation indicator by achieving a full interest rate liberalisation and significant bank lending to private enterprises, two of them also perform better in another way. In Lithuania and Slovakia, in addition to a growing regulatory framework for bank financing, the non-bank financial institutions, such as investment funds and private insurance companies start emerging and an associated regulatory framework is formed.

Latvia, Lithuania, Slovakia and Slovenia exhibit a good effort in small scale privatisation. However, large scale privatisation 'fights' major unresolved issues regarding corporate governance. The transition process of institutional conditions necessary for the development of a sound financial system is in place but with some limitations. With the exception of Lithuania and Slovakia, it seems that these CEECs have to first overcome corporate governance issues such as weak to moderate bankruptcy legislation, moderate to high bureaucracy quality and the lack of tight credit and subsidy policies. Once this is accomplished, firms seeking equity financing have a better chance of experiencing lower, and therefore, more acceptable transaction costs.

The last two CEECs, Bulgaria and Romania, 'confirm' their position of laggards in terms of the transition toward an institutional environment supportive of a sound banking system and possibly equity oriented financial system. By 2008, when the best CEE performing countries achieve institutional conditions comparable to other developed industrialised economies, Bulgaria and Romania have a comprehensive programme for implementation of privatisation in place but not all their enterprises are privatised, struggle to strengthen competition and corporate governance, and lack a regulatory system necessary for the functioning of non-bank financial institutions. Unless these conditions improve, equity culture development is not feasible as high transaction costs are an obstacle for firms diverting from the usual sources of financing to a riskier alternative - equity financing.

6. Conclusions

This paper serves as a conceptual discussion of equity culture and its creation mechanism. We believe that the conceptualisation itself can be regarded as a valuable theoretical contribution in its field. Equity culture is a less popular source of finance in the CEECs but yet developed in a number of developed economies. The way these economies, i.e. CEECs, will proceed is a dynamic and challenging issue to observe.

We graphically displayed ten CEECs from our research sample and four benchmarks in terms of their institutional characteristics and thus cumulatively, we believe, portrayed the status of their financial system developments and equity culture creation. The Co-Plot applied to create the exhibits, enabled us firstly, to identify indicators leading to debt financing and equity financing; and secondly, to place individual CEECs not only in terms of their general financial system development credibility but also in relation to equity culture creation.

Evidence from business related publications (e.g. LSE, 2006, WorldBank, 2002) as well as our personal observations from the world of finance suggest that the financial system development in Central and Eastern Europe and specifically the subject of equity culture are important current issues. The question of which CEECs have the best potential to develop and adopt an equity culture requires attention so that correct and suitable policy implications can be proposed.

Both domestic governments in the CEECs and also the European Commission are concerned with improving economic growth rates of European member states. Our research identifies those countries which are lagging behind in terms of equity culture development and further, suggests causes of this. This research should give an impetus to countries to continue with the reforms necessary.

Organisations such as the International Monetary Fund (IMF), The World Bank and regional development banks such as the Asian Development Bank (ADB) and Intra-American Development Bank (IADB) are concerned with economic development of transition economies. Our study identifies key factors in the development of an equity culture in the CEECs which may be applied to other groups of transition countries. We believe that our research and methodology will be of considerable interest to this group of international finance and development institutions.

We find that the presence of an efficient bureaucratic system and an institutional system with low corruption levels is a necessary condition for equity culture development. This is to say that transition countries which do not satisfy the institutional conditions of efficient bureaucracy and low corruption can still have certain firms demanding equity finance. However, in such institutional conditions only a small proportion of firms will move towards developing equity culture. Therefore, if a country's government aims to start building equity culture at all levels of its corporate sector, improved quality of the bureaucratic system and low levels of corruption may enable them to achieve this.

Now that the conceptualisation is in place, the main external forces which affect equity culture development have been identified, the conditions which have to be satisfied so that equity culture can develop have been named, and certain policy-making recommendations for the development of an equity culture have been proposed, the research focus can change from a macro-level to micro-level one and utilise further quantitative methods to provide a more holistic approach to the phenomenon of equity culture development in the CEECs.

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