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Discussion

Financing Structural Change and Labor Market Performance: Surveying the Role of Venture Capital and Investor Protection

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Abstract

This paper analyzes the real effects of differences in structures on financial markets, especially concerning quasi-equilibrium unemployment. It argues that a vibrant venture capital market is an important prerequisite for financing structural change and thus for keeping unemployment low in the ongoing transition to the "new economy". It furthermore points out the crucial importance of extensive investor protection in this respect. A thriving venture capital market is therefore at odds with the corporatist politicoeconomic equilibrium in continental European countries involving extensive protection of insiders on labor as well as on financial markets.

Zusammenfassung

Dieser Artikel diskutiert überblicksartig die realwirtschaftlichen Effekte von unterschiedlichen Kapitalmarktstrukturen vor allem auf die quasi-gleichgewichtige Arbeitslosenrate. Er begründet die These, dass ein hochentwickelter Risikokapitalmarkt wichtig ist, um den strukturellen Wandel zu finanzieren und um das Beschäftigungspotential der „new economy" zu erschließen. Außerdem weist er auf die hohe Bedeutung eines wirksamen gesetzlichen Schutzes insbesondere von Eigenkapitalgebern vor Ausbeutung durch die Insider der Unternehmen in diesem Zusammenhang hin. Ein aktiver Risikokapitalmarkt steht daher im Gegensatz zu einer korporatistischen Ausgestaltung der institutionellen Rahmenbedingungen, in welcher den Insidern auf allen Märkten besonderer Schutz zuteil wird.

JEL Classification: E 24, G 24

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1. Introduction**

The real effects of differences in institutional setups on financial markets are nowadays an important research topic. It was already Schumpeter (1911), though, who suggested that a well-functioning system of financial intermediation should spur economic growth. While somewhat neglected for a long time, the last decade has given rise not only to important theoretical progress in this area, but there exists also by now a sizable body of empirical evidence that the structure of financial markets can help to explain differences in growth of productivity and GDP across countries.[1] The optimal structure of financial markets depends crucially on the stage of economic development of the country concerned. A predominance of bank financing is possibly superior in earlier stages of economic development, whereas a greater reliance on stock markets might be preferable in highly developed countries.

However, a closely related question has been largely neglected up to now, namely whether the vastly different labor-market performances across OECD countries, and in particular between continental Europe and the US over the last twenty years, might also be related to institutional differences on financial markets. It is commonly argued that differences in institutions on labor markets are the main driving force in this respect. However, while labor market institutions are certainly an important explanatory factor, they can hardly account for the whole story. An important caveat arises from the fact that the US has been superior in producing job growth across the whole wage spectrum especially in the 1990s, i.e., not only low-paid jobs but also high-paid jobs are created on a much larger scale than in just about every continental European country.[2]

Hence, it seems appropriate to take a closer look at institutional differences between continental Europe and the US which do at least not directly pertain to the much-discussed labor-market rigidities and which might be conducive to non low-wage employment growth. A closer look at the effects on job growth of the different institutional structures on financial markets in the US and continental Europe is warranted as the establishment of new firms figures centrally in US employment growth, and furthermore as the leading success stories in the US of non low-wage job growth are the infor-

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1 Recent contributions are Levine and Zervos (1998), Rajan, and Zingales (1998), Beck, Levine, and Loayza (1999), Carlin and Mayer (1999), and Wurgler (2000); an overview provides Tsuru (2000).

2 See, e.g., Mc Kinsey (1994), Acemoglu (1999), and Solow (2000).

mation- and bio-technology sectors, both of which are connected to the vibrant venture capital market in the US. Companies such as Apple, Compaq, Digital Equipment Corporation, Intel, Microsoft, and Sun Microsystems were all backed by venture capital. Venture-backed firms in the US not only create jobs at a much faster rate than Fortune 500 firms, which in the first half of 1990s actually decreased staffing levels on average, but they also outperform other high-growth companies in terms of employment growth.[3] This is also true for Europe, where venture-backed companies raised employment levels on average by 15% per annum in the time period 1991–1995, whereas the average annual employment growth among the top 500 European companies in the same time period was only 2% (European Venture Capital Association, 1996).

Countries specialize according to their institutional comparative advantage[4], and a well-functioning venture capital market might have given the US an institutional comparative advantage in implementing structural change and in moving into those sectors which have turned out to be facilitating employment growth in recent years. Differences in financial market structures between continental Europe and the US and in fact essentially all Anglo-Saxon countries are still vast, although they appear to be diminishing somewhat in recent years. Anglo-Saxon capital markets tend to be stock market based, with disperse ownership of the many large public firms. In contrast, continental European capital markets tend to be still, though to a decreasing degree, dominated by large banks, which entertain close relationships with large firms not least via extensive cross shareholdings.[5]

This paper surveys the fledgling literature on the question whether these idiosyncracies in institutional structures on financial markets, in particular concerning the venture capital market and investor protection, contribute to explaining the superior employment performance over the last about two decades not only of the US but also of most other Anglo-Saxon countries compared to continental Europe (Garibaldi and Mauro, 1999). Section 2 links financial market structures to employment creation. Section 3 discusses institutional determinants of a thriving venture capital market. Section 4 presents conclusions.

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3 See Jeng and Wells (2000), and Gompers and Lerner (1999a, 137).

4 See Hall and Soskice (1999); Schertler (1999) shows theoretically how cross-country differences in venture capital markets affect the pattern of specialization.

5 See Edwards and Fischer (1994), Roe (1999), and Coffee (1999).

2. Does Financial Market Structure Affect Unemployment?

2.1 Relating Investor Protection and External Funding on the Microlevel

The key question in corporate finance is rather simple: Why do external investors ever get their money back and are not completely ripped off on a routine basis by corporate insiders, i.e., managers or entrepreneurs and possibly also workers? While there are undoubtedly many answers to this question, a string of recent papers by La Porta et al.[6] has shown that the solution to this puzzle is centrally related to the level of effective legal protection which external investors are granted in different countries. To formally analyze this issue, La Porta et al. (1999b) have recently developed a simple, intuitively appealing micromodel, which serves as a convenient starting point for the broader question how financial market structure affects real activity and unemployment.[7] They consider a deterministic setup where an entrepreneur owns cash flow rights α of the firm. He wants to undertake an investment I, which yields a return once invested of RI. The entrepreneur wants to raise external funds to finance the investment. However, external investors are reluctant to provide money since they know that the entrepreneur has ex post the opportunity to divert the fraction t of the profits directly to himself, so that only the remainder $(1-t)RI$ is split according to legal cash flow rights. The better is the legal protection of external investors as measured by k, the costlier it is for the entrepreneur to engage in such illicit diversion, though. It is particularly convenient to assume a standard quadratic cost of theft function $c(k,t) = 0.5kt^2$. Entrepreneurs are simply assumed to maximize their return on the investment which consists of legal cash flow rights plus diverted profits minus the costs of stealing:

$$\pi_E = \alpha(1-t)RI + tRI - 0.5kt^2RI \,. \tag{1}$$

Assuming a normalized rate of return of zero, the amount of external funds $F(\alpha)$, which the entrepreneur can raise, depends on what external investors expect to get back on their investment after appropriation has taken place:

$$F(\alpha) = (1-\alpha)(1-t^*)RI = (1-\alpha)\left(1-\frac{1-\alpha}{k}\right)RI \tag{2}$$

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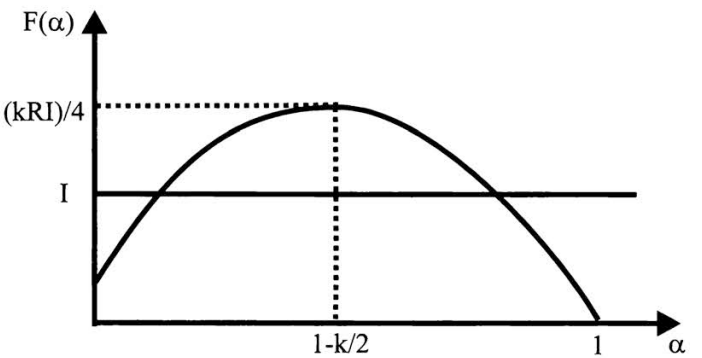
6 See La Porta et al. (1997), (1998), (1999a), and (1999b).

7 The index i for firm i is dropped in this section for notational simplicity and because only one firm is looked at.

where $t^* = (1 - \alpha)/k$ denotes the optimal amount of stealing from the point of view of the entrepreneur for the assumed quadratic cost of theft function. Figure 1 presents the hump-shaped form of the function $F(\alpha)$. A higher stake of the entrepreneur in the firm as denoted by α exerts two opposing effects on the amount of external funds $F(\alpha)$ that the entrepreneur can raise. The direct effect is to reduce the amount of profits that is left for the external investor, making him more reluctant to provide funds. However, the indirect positive effect comes via a reduction in the optimal amount of stealing for the entrepreneur, which makes it more attractive for external investors to give money to the firm. The maximum amount of funds that the entrepreneur can raise in this simple setup is equal to $(kRI)/4$, which is clearly increasing in the level of legal protection of investors k. Hence, the better external investors are protected by law and its enforcement against ex-post appropriation by entrepreneurs, the greater is ceteris paribus the amount of funds that they are willing to provide and the greater is also the feasible set of projects that can be financed externally.



Source: La Porta et al. (1999b, 15).

Figure 1: Availability of Funds to Entrepreneur

2.2 A Macromodel Linking Unemployment to Financial Market Imperfections

Standard macromodels for determining the quasi-equilibrium unemployment rate do usually not consider financial market imperfections. The decision whether or not to establish a new production unit must be at the center of any comprehensive model of the determination of quasi-equilibrium unemployment which integrates labor and financial market imperfections.

This is the gist of a recent stochastic macromodel of Caballero and Hammour.[8]

The model of Caballero and Hammour is based on the idea that employment is only possible if entrepreneurs, workers, and financiers enter into joint production units and that contractual relationships between entrepreneurs and workers as well as between entrepreneurs and financiers are imperfect. Both relationships require relationship-specific investments and are therefore open to the hold-up problem, i.e., workers as well as management wield the power to at least partially appropriate capital ex post, assuming that capital undergoes the greatest transformation and becomes most relationship-specific once invested. The bargaining power of workers is typically reinforced by politically-induced labor market rigidities such as high firing costs. In other words, if capital is largely sunk after being invested and if the legal environment does not put great emphasis on protecting capital from ex-post appropriation by workers and management, rational financiers will already ex ante erect a high threshold value for the profitability of projects they are asked to finance. This is the case because they know that management and workers will ex post try to renegotiate payments to production factors to their detriment. For that part of the capital which is sunk and not collateralized, financiers will ex post only receive part of the accruing rents which the project produces. The size of the payments hinges on the ex post relative bargaining power of production factors and on the size of the rents, but not on the opportunity costs of this part of the capital which is sunk.

The model economy is composed of three sets of risk neutral agents: Entrepreneurs, workers, and financiers. New production units (firms) are infinitesimally small and they combine in fixed proportions an entrepreneurial idea, one unit of labor, and κ units of capital. They are only created if all three agents enter into a joint project. Entrepreneurs are the only ones who have access to projects. Entrepreneurs are indexed by i and maximize their expected present value of consumption. Each entrepreneur disposes of financial assets worth c_i which he commits to the project. If $c_i < \kappa_i$, project i can only be realized if an external financier makes up for the remainder $b_i = \kappa_i - c_i$.[9] External financing is assumed to take place via a competitive financial sector.

The output flow of production unit i at time t is given by:

$$y_{it} = v_{it} + \tilde{\varepsilon}_{it} \ . \tag{3}$$

[8] The presented macromodel is based on Caballero and Hammour (1998) and especially (1999).

[9] $b_i < 0$ means that the firm has positive internal funds.

$v_{it} \in [-\bar{v}, \bar{v}]$ reflects the specific productivity of unit i at date t which is decreasing in the age of the production unit, and $\tilde{\varepsilon}_{it}$ is a transitory idiosyncratic shock, which alternates with probability λ, $0 < \lambda < 1$, between the good state of the world, $\varepsilon^+ > 0$, and the bad state of the world, $\varepsilon^- < 0$. Firms can fail because they are getting outdated or due to negative shocks.

It is for simplicity assumed that all of the invested capital becomes specific to the project in the sense that it completely loses its value if the project is abandoned prematurely. This gives rise to contractual difficulties in the employment and financing relationships.[10] Insiders, i.e., workers and management, acquire a greater share of the quasi-rents that are produced within the nexus of the firm than was agreed upon ex ante thus appropriating capital. Labor and management cannot credibly precommit not to withhold their human capital from production once the production unit has been formed and capital has become fully specific to it and is sunk. The labor market is assumed to be imperfect due to government-imposed firing costs which make it expensive to lay off workers and which give politically-induced bargaining power to workers. Assuming imperfect legal protection of providers of capital and that fully state contingent contracts are either unenforceable or too complex, specific quasi-rents will be divided up according to the parties' ex post and not the ex ante terms of trade.

The ex-post division of rents between labor and capital is governed by continuous-time Nash bargaining.[11] Labor not only obtains its opportunity costs w_t^0 , but also a share $\beta \in (0,1)$ of the present value S of the unit's specific quasi-rents, s_{it} :

$$w_{it} = w_t^0 + \beta s_{it} \tag{4}$$

The size of β reflects the relative ex-post bargaining power of workers vis-à-vis entrepreneurs and financiers who together receive $(1-\beta)S$. The quasi-rents of production unit i are:

$$s_{it} = y_{it} - w_t \ . \tag{5}$$

10 The use of collateral could of course attenuate the contractual difficulties. However, the essence of the argument is valid as long as the financier does not receive full collateral.

11 Hence, wage bargaining takes place on the firm level. However, the basic argument also holds for sectoral wage bargaining which is typical for many OECD countries. Rent sharing takes then place on the sectoral level. This approach does not fit countries with very centralized wage bargaining systems on the national level, though. Yet, such very centralized wage bargaining systems are rarely observed anymore as even the Scandinavian countries such as Sweden have moved away from it.

The opportunity costs of labor w_t^0 consist of a stock and a flow component. The latter is the level of unemployment benefits w^b , the former is the present value of the increase in human wealth $\beta E(S_t)$ that an unemployed worker receives if he finds a new job. The probability of reemployment is gross hiring H_t divided by total unemployment U_t . Hence:

$$w_t^0 = \frac{H_t}{U_t}\beta E(S_t) + w^b \ . \tag{6}$$

Total unemployment is by definition equal to $U_t = 1 - N_t$, where N_t represents total employment at time t. This amount is given by adding up both, employment in firms which enjoy the good state and those which find themselves in the bad state of the world.

Since one unit of production is by the assumption of a limitational production function restricted to using one unit of labor, the total number of firms is equal to aggregate employment. Production units are continuously created and destroyed. Creation of new firms takes place whenever the following two necessary conditions are satisfied: The unit must be profitable and it must obtain financing. Profits to be shared by the entrepreneur and the financier of unit i in period t are given by:

$$\pi_{it} = y_{it} - w_{it} = (1 - \beta)s_{it} \ . \tag{7}$$

However, whether or not to create a new production unit depends not on one period profits, but rather on the total discounted value of future profits. As this value differs according to the current idiosyncratic state of the world, it is defined to be either $\Pi_t^+(b_{it}, v_{it})$ or $\Pi_t^-(b_{it}, v_{it})$. Profits are decreasing in b, because a higher b increases the risk of privately inefficient liquidation, i.e., an in principle profitable production unit must be shut down in a situation of financial distress because financiers are not willing to inject additional liquidity into it. A unit is profitable if the expected present value of future profits is at least as large as the setup cost:

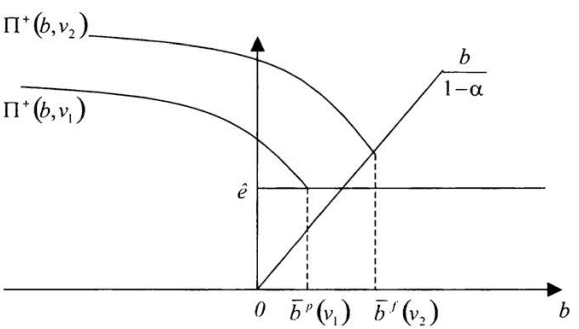
$$\kappa \leq \Pi_t^+(b, v) \ . \tag{8}$$

It is the key point for the argument that new firms need to be financed. The financial relationship is assumed to suffer from an equivalent problem as the employment relationship. The viability of the project depends on the cooperation of the entrepreneur, i.e., on his human capital. However, the entrepreneur cannot credibly precommit not to withdraw his participation ex post. He can always ex post threaten to stop working in which case the invested capital loses all its value as it is assumed to be fully sunk. Ex post

Nash bargaining between the entrepreneur and the financier is assumed to lead to the ex-ante known result that the entrepreneur receives the share $\alpha \in (0,1)$ of the present value of profits Π with the financier getting $(1-\alpha)\Pi$. Even if the two parties, entrepreneur and financier, agree ex ante upon larger payments to the financier, the entrepreneur will ex post, after the capital is sunk, dispose over the bargaining power to renegotiate payments to the financier down to $(1-\alpha)\Pi$. Hence, a new unit can at most incur the following amount of net uncollateralized liabilities:

$$b = \kappa - c \leq (1-\alpha)\Pi_t^+(b, v_t) \; . \tag{10}$$

The greater is the initial productivity v_i of a new unit i, the more likely it is that the financing constraint is the one that is binding and vice versa. This can be seen in figure 2, which assumes that $v_1 < v_2$, and which incorporates the fact that $\Pi_t^+(b,v)$ is decreasing in b. Hence, $\bar{b}^p(v_1)$ is the maximum amount of net uncollateralized liabilities a new unit of initial specific productivity v_1 can sustain due to the profitability constraint, while $\bar{b}^f(v_2)$ is the respective amount for a new unit with initial specific productivity v_2 due to the financial constraint.



Source: Caballero and Hammour (1999, 11).

Figure 2: Financing versus profitability constraint in creation investment

The model has the following implications for labor market performance.[12] For structural unemployment to occur, it is a necessary condition that the labor market is imperfect and that workers dispose over the market power to appropriate part of the rents which are created in production units. Factors contributing to such labor-market rigidities are high firing costs, strong

[12] For different parametric solutions of the model, see Caballero and Hammour (1999).

unions, and generous unemployment benefits. This rent component in wages, which is due to labor market rigidities, upsets the free-entry condition for new firms. It reduces the expected profitability of committing capital to new production units below the return required by capital markets. This disequilibrium situation is resolved by an increase in structural unemployment, which is induced by less creation of new firms. The rise in structural unemployment and the decrease in hiring lead to higher unemployment duration U/H , thus lowering the opportunity costs of labor. This offsets rent appropriation by workers, and restores the rate of return required by the capital market for capital to enter into new joint production units or refinancing distressed firms. In this quasi-equilibrium, actual wages inclusive of the rent component can fall below the wage in the efficient market clearing situation. This possibility arises because creation incentives as well as the opportunity costs of labor are lower, and inefficient units can survive longer thus inducing sclerosis and reducing productivity growth. These effects occur because inefficient destruction lowers the opportunity costs of labor thus reducing the pressure on inefficient firms to close down.

The degree to which the legal environment protects financiers from ex-post appropriation by workers and management therefore has an important influence on the capability of an economy to create new firms. Based on these theoretical considerations, it is therefore conjectured that capital-market imperfections affect negatively labor market performance across countries even when controlling for the key institutional variables on the labor market. Measures of how well capital markets work are inter alia the effective legal protection of shareholders and creditors and, closely related, the availability of venture capital.

2.3 The Degree of Investor Protection Across Countries

Investigating the effective level of legal protection of external investors and its effects on real economic activity has been a thriving research topic in the corporate governance literature in recent years.[13] The results show that the level of effective legal protection varies substantially across highly developed OECD countries, and that the legal heritage of countries seems to matter considerably. It turns out to be convenient to put countries into four groups: Anglo-Saxon countries with a common law tradition in contrast to, German, French, and Scandinavian law countries, which all have civil law traditions. Hence, countries belonging to one of the four legal groups have common roots concerning legislation and its enforcement on financial mar-

[13] See La Porta et al. (1997), (1998), (1999a), (1999b), Carlin and Mayer (1999), and Wurgler (2000).

kets. These commonalities might be due to colonial ties or simply due to copying of regulations as did essentially a number of East-Asian countries with German law. It is important to distinguish between shareholder rights and creditor rights because different types of legal protection apply in the two categories, and because the level of effective legal protection accorded to the two kinds of investors varies considerably across countries.

The following tables 1a and b show the results of the analysis of these issues by La Porta et al. for the mid 1990s.[14] Anglo-Saxon countries protect in particular shareholders substantially better than all other countries. This conforms with the well-known facts that not only the capitalization of the stock market and of the venture capital market relative to GDP, but also that the number of firms relative to the population and the number of initial public offerings relative to the population are by far the largest in Anglo-Saxon countries. A stronger protection of minority shareholders and of shareholder interests in general in the Anglo-Saxon countries also squares well with the more dispersed ownership structure of public firms compared to all countries with a civil law tradition and with a higher valuation of firms relative to their fundamentals as measured by Tobin's Q. Countries influenced by the French civil law tradition provide in general the least effective legal protection to investors, be they shareholders or creditors. German and Scandinavian law countries are in between.

In terms of figure 1, Anglo-Saxon countries can therefore be expected to be close to the maximum concerning the availability of external funds. German and Scandinavian law countries are located to their right with smaller availability of external funds and greater cash flow and control rights of entrepreneurs due to the larger benefits of private control. French law countries are even further to the right due to their legal setting being least protective of external investors and due to private benefits of control being largest.

Comparing therefore Anglo-Saxon with French and Scandinavian law countries, it can be expected that the institutional setup on financial markets works in favor of a superior employment performance of Anglo-Saxon countries. A more intriguing case are the German law countries in comparison to the Anglo-Saxon countries. While they give far less effective legal protection to shareholders, they accord the same overall average legal protection to creditors, and they actually give compared to all large OECD common law countries a better effective legal protection to creditors except for the UK. This fits again nicely with the well-known facts that banks play

14 La Porta et al. argue that the institutional setting on the capital market depends in large part on legal heritage, so that it does not change quickly over time relative to other countries.

a large role in countries with a German law tradition on capital markets and that firms in these countries are to a relatively large degree debt financed. It should also after all not be forgotten that the German group consists of countries which had a substantially better unemployment record than the Anglo-Saxon countries until the early 1980s. It is therefore puzzling how the structure on financial markets can contribute to explaining why the labor market performance of German law countries relative to Anglo-Saxon countries has deteriorated over the last two decades.

Table 1a

Legal Origins and External Capital Markets – Summary Presentation 1995

	Domestic Firms / Pop	IPOs / Pop	Debt / GNP	Non-Debt External Capital / GNP	Shareholder Rights[1]	Creditor Rights[2]	Tobin's Q
English-Law Mean	61.66	3.01	0.75	0.62	4.3	2.4	1.2552
OECD Mean[3]	43.20	2.29	0.78	0.50	4.5	1.8	1.2812
Non-OECD Mean[4]	98.59	4.21	0.63	0.87	4.0	3.7	1.2032
French-Law Mean[5]	12.71	0.29	0.63	0.19	2.0	1.2	1.1518
German-Law Mean[6]	17.30	0.15	0.97	0.37	2.2	2.4	1.1536
Scandinavian-Law Mean[7]	27.27	2.14	0.57	0.30	3.0	2.0	1.1202

1. Shareholder rights: An index aggregating shareholder rights. The index is formed by adding 1 when:
1. the country allows shareholders to mail their proxy vote;
2. shareholders are not required to deposit their shares prior to the General Shareholders' Meeting;
3. cumulative voting is allowed;
4. an oppressed minorities mechanism is in place; or
5. when the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10 per cent. The index ranges from 0 to 5.

2. Creditor rights: An index aggregating creditor rights. The index is formed by adding 1 when:
1. the country imposes restrictions, such as creditors' consent or minimum dividends, to file for reorganization;
2. secured creditors are able to gain possession of their security once the reorganization petition has been approved (no automatic stay);
3. the debtor does not retain the administration of its property pending the resolution of the reorganization;
4. secured creditors are ranked first in the distribution of proceeds that result from the disposition of assets of a bankrupt firm. The index ranges from 0 to 4.
3. English-Law OECD countries: Australia, Canada, Ireland, New Zealand, UK, and US.
4. English-Law Non-OECD countries: Hong Kong, Israel, and Singapore.
5. French-Law countries: Belgium, France, Greece, Italy, Mexico, Netherlands, Portugal, and Spain.
6. German-Law countries: Austria, Germany, Japan, South Korea, and Switzerland.
7. Scandinavian-Law countries: Denmark, Finland, Norway, and Sweden.

Sources: La Porta et al. (1997), (1998), (1999b), and own calculations.

Table 1b

Legal Origins of Countries and External Capital Markets in 1995

Country	Domestic Firms / Pop	IPOs / Pop	Debt / GNP	Non-Debt External Capital / GNP	Share-holder Rights	Creditor Rights	Tobin's Q
English-Law OECD							
Australia	63.55	–	0.76	0.49	4	1	1.2345
Canada	40.86	4.93	0.72	0.39	5	1	1.1510
Ireland	20.00	0.75	0.38	0.27	4	1	1.2862
New Zealand	69.00	0.66	0.90	0.28	4	3	1.1949
UK	35.68	2.01	1.13	1.00	5	4	1.4257
US	30.11	3.11	0.81	0.58	5	1	1.3950
Mean	*43.20*	*2.29*	*0.78*	*0.50*	*4.5*	*1.8*	*1.2812*
English-Law Non-OECD							
Hong Kong	88.16	5.16	–	1.18	5	4	1.0424
Israel	127.60	1.80	0.66	0.25	3	4	1.1672
Singapore	80.00	5.67	0.60	1.18	4	3	1.4001
Mean	*98.59*	*4.21*	*0.63*	*0.87*	*4.0*	*3.7*	*1.2032*
French-Law							
Belgium	15.50	0.30	0.38	0.17	0	2	1.1021
France	8.05	0.17	0.96	0.23	3	0	1.0904
Greece	21.60	0.30	0.23	0.07	2	1	1.4218
Italy	3.91	0.31	0.55	0.08	1	2	1.0156
Mexico	2.28	0.03	0.47	0.22	1	0	1.3365
Netherlands	21.13	0.66	1.08	0.52	2	2	1.2213
Portugal	19.50	0.50	0.64	0.08	3	1	0.9577
Spain	9.71	0.07	0.75	0.17	4	2	1.0691
Mean	*11.81*	*0.28*	*0.58*	*0.18*	*2.2*	*1.2*	1.1445
German-Law							
Austria	13.87	0.25	0.79	0.06	2	3	1.1088
Germany	5.14	0.08	1.12	0.13	1	3	1.2359
Japan	17.78	0.26	1.22	0.62	4	2	1.3020
South Korea	15.88	0.02	0.74	0.44	2	3	1.0663
Switzerland	33.85	–	–	0.62	2	1	1.0550
Mean	*17.30*	*0.15*	*0.97*	*0.37*	*2.2*	*2.4*	*1.1536*
Scandin.-Law							
Denmark	50.40	1.80	0.34	0.21	2	3	1.1671
Finland	13.00	0.60	0.75	0.25	3	1	1.0812
Norway	33.00	4.50	0.64	0.22	4	2	1.1450
Sweden	12.66	1.66	0.55	0.51	3	2	1.0875
Mean	27.27	2.14	0.57	0.30	3.0	2.0	1.1202

Sources: La Porta et al. (1997), (1998), (1999b), and own calculations.

2.4 Financial Market Imperfections and Relative Changes in Labor Market Performance

A crucial step in resolving this puzzle consists in recognizing that the economic environment has fundamentally changed over the last twenty years. Not only have the German law countries essentially finished the catch-up process after the war by the end of the 1970s, but all highly developed countries have entered into another phase of radical structural change, which can in a stylized form be described as moving away from the industrial sector toward the service sector and toward the information-technology sector. This is nowadays often called the transition to the "new economy". In particular the manufacturing of largely standardized industrial goods, where fixed capital investment and economies of scale play a large role, is rapidly becoming an outdated mode of production in highly developed countries.

Their relatively sophisticated protection of creditors gives German law countries a comparative institutional advantage in debt financing which is reflected in close and long-lasting bank-firm relationships. Such an institutional setup appears to be advantageous mainly in stable times where countries are moving along a more or less already known technological trajectory and where the aggregate level of investment into fixed capital is crucial for the overall performance of the economy. Past profits are then a relatively good indicator for future success so that the information problem which firms should receive financing is less difficult to disentangle. Furthermore, fixed capital can very well serve as collateral, which is important for debt-financing. German law countries such as Germany itself or Japan, which have an edge in protecting creditors and where there are strong ties between banks and large firms, therefore display comparatively high rates of fixed capital investment.

Fixed capital investment was an important component of employment growth in the catch-up phase after the war when radical innovations by the leading industrial nations could be mimicked and when insiders on the labor market were not as well entrenched yet. But the more a country moves to the frontier of economic development, the less investment into fixed capital fosters employment growth. This fits with the observation that countries such as Germany and Japan have benefited from their capital market institutions during the post-war period, but that this has become doubtful during the last decade (Carlin and Mayer, 1999).

While such a financial market structure might have been appropriate in the first half of the post-war period, it is hardly optimal for the current period of rapid structural change, where especially the correlation between past profits and future investment opportunities is lower. A key problem in financing structural change nowadays is how to get free cash flows out of

large established firms with few profitable investment projects to new, liquidity-constrained entrepreneurs with promising ideas for investment projects in fledgling sectors, where employment growth mainly takes place. A strong bargaining position of shareholders vis-à-vis management like in Anglo-Saxon countries helps because it forces management in the large public firms to pay out a larger fraction of free cash flows, which can then be channelled into investment projects according to capital market profitability criteria.[15]

Key aspects for achieving employment growth in highly developed countries and thus in later stages of economic development are the ability to finance structural change by funding R&D, by orchestrating radical product innovations, and by establishing new firms.[16] This is in particular true if employment growth is not to take place only in the form of low-paid service sector jobs. Incremental or process innovations in industries where the main technological breakthroughs essentially occurred either at the end of last century or during the first half of this century are hardly avenues for achieving major employment gains anymore. Rather, employment growth largely takes place in the service sector or in the production of new and niche products which are often technologically advanced. An important source of employment growth in the 1990s have also been investments into information technology. However, similar to the service sector, investments into information technology largely produce intangible assets so that countries which have trouble in adequately financing such high-risk ventures by means of equity or venture capital have an inherent disadvantage in obtaining employment growth in the thriving service and information-technology sectors compared to Anglo-Saxon countries.[17] Empirical evidence indicates that the use of debt financing depends positively on asset tangibility.[18] A large stream of new firms entering the product market each period facilitates structural change, so that countries which provide an institutional environment which is conducive to the creation of new firms have less problems in managing the transition to a more service- and information-technology-based economy.[19]

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15 See Hubbard (1998), Hellwig (2000), Wurgler (2000), and Fehn (2002).

16 See Audretsch (1995), Becker and Hellmann (1999), and Carlin and Mayer (1999).

17 See Schertler (1999); Hellwig (2000) points out that German banks collect on average about 80% of their claims on collateralized loans so that bankruptcy is not an unmitigated disaster for them, thus also reducing their incentive to engage in close monitoring which supposedly is a virtue of bank-dominated financial markets.

18 See Gompers and Lerner (1999a, 143); Hall (1999) presents empirical evidence based on stock market valuations in the US that the aggregate importance of intangible assets has risen considerably.

19 See Guiso (1997), Harhoff (1997), and Weigand and Audretsch (1999).

The failure rates among such projects as R&D, product innovations, and new firms is generally high while the few successful ones are likely to produce large profits. They are therefore dependent on a particular financial market structure. First, the institutional structure on the financial market must handle well problems of asymmetric information. Second, it must be able to provide funding to highly risky projects without receiving much in the way of collateral. Third, as it is uncertain which projects will be successful, it must be able to sort out and provide financing to a large number of projects, and there must also be the possibility to abandon projects quickly once their failure becomes apparent. Fourth, the capital market must provide a suitable environment for financiers to convert successful projects into cash for themselves, e.g. by going public. It must help to prevent workers and management from breaching the ex-ante agreed upon terms of trade by reducing ex post payments to financiers.

These conditions are arguably more likely to be fulfilled on Anglo-Saxon type stock-market based financial markets with in particular a thriving venture-capital market and with an elaborate effective legal protection of shareholders and venture capitalists than on German law financial markets.[20] In particular, venture capitalists participate fully in the profits of successful projects so that they are more willing than creditors to finance highly risky projects. In addition, venture capitalists are especially able to reduce the problem of asymmetric information due to their active engagement in the process of actually carrying out projects and due their expertise in monitoring firms in the sector concerned. Furthermore, the number of projects that are initially financed is larger when there is a well-developed venture capital market. Recent empirical studies show that there is a positive relationship between innovation activity / founding of new firms and a well-developed market for venture capital.[21]

As this paper is intended to provide a survey of the issues with respect to the role of investor protection and venture capital in financing structural change and thus fostering employment growth, a thorough empirical investigation is relegated to other papers. Such an empirical investigation has to take a number of complicating factors into account. First, the issue of stationarity of unemployment rates and of employment rates needs to be addressed. Second, the full employment effect of venture capital investment is likely to build up over time so that a dynamic empirical model is called for. Third, it could be the case that a third missing variable like labor market rigidity is correlated with both low venture capital investment and bad em-

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20 See Black and Gilson (1998), Hellmann and Puri (1999), Tsuru (2000), and Wurgler (2000).

21 See OECD (1996), Kortum and Lerner (1998), and Hellmann and Puri (1999).

ployment performance. Fourth, venture capital investment is an endogenous variable for which proper instruments need to be found. Only encompassing and thorough empirical studies based on panel data which also take integration problems and interaction effects into account can therefore underscore the argument that low investor protection and venture capital investment are hampering labor market performance.[22]

3. What Are the Determinants of Venture Capital Funding?

3.1 Some Important Facts Concerning Venture Capital Markets

There can be little doubt that persistent differences exist in venture capital markets across countries, with the Anglo-Saxon countries and among them especially the US and the UK having the most developed venture capital markets. Apart from pure size relative to GDP, venture capital markets in the US and the UK are also better able to finance early-stage and high-tech investments which are crucial for achieving positive effects of venture capital on real activity and employment growth (Botazzi and Da Rin, 2001). Concerning Germany, though, the caveat is in order that the German venture capital market has experienced considerable growth rates in the second half of the 1990s in the wake of the establishment of the "Neuer Markt", which can be seen as an attempt to emulate the success of NASDAQ in providing young firms with a less cumbersome avenue for going public (Coffee, 1999).

As the corporate finance literature has recognized the importance of venture capital markets for real activity, it has in recent years devoted considerable efforts into theoretically and empirically investigating the determinants of venture capital funding across countries. A number of intriguing insights emerge from this fledgling literature. Following the American understanding, venture capital is here defined to be investments by specialized venture capital organizations (venture capital funds) in high-growth, high-risk, often high-technology firms that need capital to finance their start-up, product development, or growth and must, by the nature of their business, obtain this capital largely in the form of equity rather than debt. Buyout financing enabling managers of mature firms to acquire control from current owners is excluded although this is precisely what so called venture capitalists often do in Europe.[23]

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[22] Detailed panel data analyses of the relationship between capital and labor market institutions on the one hand and employment performance of OECD countries on the other hand can be found in Belke and Fehn (2001) and in Belke, Fehn and Foster (2002). Both studies confirm on the macrolevel that total as well as early stage venture capital investment exert a significant and sizable positive effect on labor market performance.

Venture capitalists serve as financial intermediaries in markets where lenders and borrowers find it costly to get together, e.g., due to severe moral hazard and adverse selection problems, or due to high costs of information gathering. Bank credits are in these cases not the optimal solution. First, such firms usually lack collateral for debt financing. Second, debt financing restricts the use of incoming cash flows already in the early stages of the firms' lifecycles to fulfilling interest payment obligations, thus being undesirable for such firms from a cash management perspective. Third, especially in Germany and Japan banks are typically large and provide a range of services, so that they lack the specialization and focus to handle small start-ups. In contrast, venture capital financing, which usually takes place in stages, is attractive especially for start-ups because the equity financing structure gives them flexibility in their repayment schedule. By focusing on start-ups, venture capitalists acquire expertise and economies of scale in locating potentially successful start-ups.

Albeit venture capital financing is an important way to circumvent liquidity constraints, it is crucial that venture capitalists do not only give money to their portfolio companies. Rather, three other aspects are also central to understanding the venture capital industry.[24] First, venture capitalists provide management assistance to the portfolio company similar to consulting firms. This is possible because the typical venture capital fund is a limited partnership run by general partners who are experienced at moving companies up the development path. It can therefore help through common problems of high-technology firms when they move from prototype development to production, marketing, and distribution. In addition, the venture capital fund's knowledge and experience with prior startup firms in this industry enables it to help its portfolio companies in locating experienced personnel.

Second, venture capitalists engage in intensive monitoring of the performance of their portfolio firms (Keuschnigg, 1998). They not only have a large incentive to do so due to their equity ownership, but also in contrast to universal banks the expertise concerning sector-specific knowledge, and the power to act in case things go wrong due to the typically substantial levers of control which portfolio companies have to cede to their venture capitalists. A particularly important lever of control stems from the typical contractual arrangement that capital is only provided in stages by the venture capitalist allowing him to withdraw financing at intermediate stages. This serves to prevent the entrepreneur / management from diverting some of the

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23 See Black and Gilson (1998), Jeng and Wells (2000), and Becker and Hellmann (1999).

24 See Black and Gilson (1998), and Repullo and Suarez (1999).

firm's profits rather than to the financiers of the firm at large. These control rights are typically disproportionately large compared to the size of the financial commitment by venture capitalists. It is important that venture capitalists usually receive convertible debt or convertible preferred stock that carries the same voting rights as if it had already been converted into common stock. Finally, venture capitalists often also get a disproportionate representation on the board sometimes even up to an absolute majority or veto power over important operating decisions.

Third and often neglected, venture capitalists provide their portfolio companies with reputational capital, i.e., similar to other financial intermediaries such as investment banks they give credibility to their portfolio companies with third parties whose contributions are often crucial to the success of the young firm. Potential and actual personnel, suppliers, and customers are all more willing to engage in contractual relationships with a firm if a well-known venture capitalist backs it with money and advice as well as with control activities. Venture capitalists are in possible contrast to a start-up firm repeat players who need to maintain a good reputation in the venture capital market in order to attract future engagements. The reputational capital role of venture capitalists is underlined by the fact that venture-capital-backed initial public offerings (IPO) do empirically not exhibit the long-run underperformance that is reported for IPOs in general. This reputational effect is especially important for early-stage companies with little reputation of their own. Thus, by the time the portfolio company begins to succeed and to build up a reputation of its own, the value of the venture capitalist to the portfolio company starts to decline and, at a certain critical threshold level, he should better engage in other early-stage investments (Kaplan and Strömberg, 2000). All three points taken together, management assistance, monitoring, and reputational capital, suggest that venture capital is actually a variant of relationship-based financing, but one which can only flourish in an institutional environment with a well-functioning arm's length financial system. Hence, it is in fact a hybrid system (Tsuru, 2000).

3.2 Institutional Driving Forces of Venture Capital Markets

In order to explain the cross-country differences, it is important to analyze the institutional driving forces of venture capital markets. These institutional factors can be distinguished according to whether they affect the supply or the demand for venture capital. Jeng and Wells (2000) have in a thorough panel data analysis detected that mainly three institutional factors make a difference in explaining the development of venture capital

markets across countries and over time: Private pension funds, labor market rigidities, and IPOs.[25]

A first and most conspicuous factor in the growth of the venture capital industry especially in the US are private pension funds. Private pension funds are by far the largest supplier of venture capital in the US. They supply almost half of all the funds of venture capitalists (Black and Gilson, 1998). This is not by coincidence. Rather, raising money from pension funds provides a number of advantages to venture capitalists. They can thereby quickly raise large amounts of money solely by approaching a few large funds. In addition, they can in this way restrict the time they need to spend on keeping their financiers informed. Furthermore, due to the peculiar nature of their liabilities pension funds can afford to have a relatively long time horizon and they have large funds to invest, so that they are well suited for committing part of their money to highly risky projects, but with a high expected return on average. Yet, large-scale financing of venture capitalists by pension funds has only been possible in the US since the 1979 amendment to the "prudent man" rule governing pension fund investment. Prior to 1979, the Employee Retirement Income Security Act (ERISA) barred pension funds from investing money into venture capital or other high-risk assets. The Department of Labor's clarification of the rule in 1979 allowed pension managers to also invest in high-risk assets, including venture capital (Kortum and Lerner, 1998). The significance of pension funds for explaining the growth of the venture capital industry is therefore greater in the within countries specification of Jeng and Wells (2000), which explains changes over time within countries, than in the between specification, which explains cross-country differences.

This positive effect of private pension funds on the venture capital industry comes from the supply side. However, a caveat is therefore in order against overemphasizing the role of pension funds in explaining cross-country differences in the growth of the venture capital industry (Black and Gilson, 1998). It seems more appropriate to explain major cross-country differences by demand-side factors considering that money is the ultimate fungible commodity. If there were a sufficiently large profitable opportunity set for venture-backed firms and thus demand for venture capital, e.g., in coun-

25 These empirical results are grosso modo corroborated by Black and Gilson (1998), and Gompers and Lerner (1999b). Other potentially important institutional factor are capital gains tax rates and codetermination laws. However, it is difficult to make cross-country comparisons of effective marginal tax rates and Jeng and Wells (2000) did not dispose over the necessary data for capital gains tax rates for all their countries and time periods to include them in their panel-data analysis. Extensive codetermination regulations are a predominantly German phenomenon but with potentially important negative repercussions on the development of the venture capital market as they reduce the attractiveness of IPOs.

tries like Germany and Japan, funds should be available from other sources and if necessary also other countries.

Labor market rigidities are a second important explanatory factor in the panel data analysis of Jeng and Wells (2000), which comes from the demand side for venture capital, though. In particular strict employment protection legislation such as is prevalent in most continental European countries impedes the growth of the venture capital industry because it makes hiring workers more risky, thus depriving venture-backed firms of the flexibility to lay off workers quickly and at little cost at a later stage. Furthermore, rigid labor markets typically lead to higher labor costs which makes it less attractive to start a new business in the first place. Finally, leaving a permanent job with sizable seniority rights in a large corporation to start one's own business is much riskier in a highly regulated labor market with smaller flows out of unemployment. If the new venture is not as successful as expected or even fails, it might be difficult for the would-be entrepreneur to reacquire a position as an employee with similar pay, status, and job security as before. Hence, a highly regulated labor market deters would-be entrepreneurs from trying to start their own business (Becker and Hellmann, 1999).

These labor market effects matter more for early-stage venture-backed investments than for later stage ones due to the higher risk of bankruptcy in the former case. This is also reflected in the empirical results. Labor market rigidities only exert a statistically significant negative effect on the growth of the venture capital industry in the cross-country specification if the dependent variable is restricted to early-stage investments. However, a caveat is again in order. Employment protection legislation such as severance payments typically builds up over time and is less burdensome for start-up firms. Unpaid severance obligations are of little significance in case of bankruptcy. They only expand the pool of unsecured claims on the remaining assets of the firms. Hence, most important is the last effect: Highly regulated labor markets with large seniority components concerning salaries and job security deter potential entrepreneur thus reducing demand for early-stage venture capital.[26]

The third empirically important institutional factor in the analysis of Jeng and Wells (2000) are IPOs. IPOs turn out to be the main driving force for the venture capital industry across countries. IPOs are the only institutional factor, which is statistically significant in both specifications, across coun-

[26] This confirms the point made ealier that empirical analyses on the impact of venture capital investment on employment performance need to be careful in not omitting a third variable because labor market rigidities cause both bad employment performance and low venture capital investment.

tries and over time. IPOs can be expected to positively influence both, the supply and the demand for venture capital. The positive effect of IPOs is stronger for later-stage than for early-stage venture-backed investments. Once again, the main risk faced by investors in general and venture capitalists in particular is not getting their money back. Thus, a viable exit mechanism is key to the development of the venture capital industry.

However, an exit mechanism is also essential to the entrepreneur, i.e., to the demand for venture capital for two reasons (Black and Gilson, 1998). First, it provides a financial incentive for equity-compensated managers to increase effort because they know with greater certainty in such a case that higher efforts on their part will eventually be financially rewarded. Second, it gives the managers a call option on control of the firm because venture capitalists relinquish control at the time of the IPO. This is a crucial factor in the implicit agreement between the venture capitalist and the entrepreneur. Entrepreneurs want to retain control over their firm. However, they cannot demand that they be allowed to maintain control when they seek venture financing because they often have not even run a start-up company before. Venture capitalists therefore insist on ultimate control rights to protect themselves against the risk that the entrepreneur blunders in running the venture or extracts private benefits from the firm instead of maximizing its value to all investors.

The situation is beginning to change, though, once the start-up firm succeeds and the entrepreneur has proven his management skills and has provided some evidence that he can be trusted in dealing with other people's money. The positive management and reputation effects that the venture capitalist provides for the firm start to diminish so that it becomes more likely that the value of the firm is actually maximized by returning control. Regaining control is mainly possible for the entrepreneur via an IPO, whereas the alternative route of selling the whole company normally entails the complete loss of control for the entrepreneur.

An IPO is only available to the portfolio company when it is successful because only then will a reputable investment bank underwrite the IPO, thus putting its own capital and reputation into the offering. Investment banks act as information intermediaries in IPOs who put their reputation at stake on behalf of portfolio companies, thus signalling to the stock market that buying shares of these companies is a profitable investment. Hence, investment banks play a partially similar role to venture capitalists, only at a later stage of the lifecycle of the firm.

It might be objected, though, that venture capitalists cannot credibly commit ex ante to returning control and to accepting the IPO contingent on a concept as nebulous as success. However, venture capitalists do not have

an incentive to breach the implicit agreement and prevent entrepreneurs from exercising their call option on an IPO in case of success where they have found a prestigious investment bank as underwriter of the IPO. Venture capitalists are repeat players who do not want to acquire a reputation as preventing successful portfolio firms from going public. Rather, the opposite is true, having a track record of many successful IPOs will help venture capitalists to stay in business, expand, and to obtain highly promising portfolio firms in the future. Hence, this credibility argument in an infinite horizon game is crucial for the viability of the implicit contract between entrepreneurs and venture capitalists.

It is in this respect important to keep in mind that venture capitalists typically specialize in dealing with geographically close portfolio companies, which is reflected in the heavy geographical concentration of the venture capital industry in the US in the northeast and in northern California. This not only facilitates monitoring by venture capitalists, but it also fosters the emergence of a reputation market, where a valid claim that a venture capitalist does not live up to this implicit contractual agreement would thwart his future chances of becoming lead investor in the most attractive start-up companies.[27] In sum, the availability of an IPO appears to be central for a thriving venture capital market and the actual number of IPOs is likely to understate this crucial link because it is also the mere possibility of an IPO which prods venture-backed start-ups. IPOs require an active stock market with large-scale trading, so that bank-centered financial markets with still relatively small stock markets such as in Germany or Japan are not conducive to the growth of the venture capital market.

4. Concluding Remarks

The venture capital market is still far less developed in continental European countries than in Anglo-Saxon countries in spite of its potentially beneficial effects on financing structural change and on labor market performance. This might be related to different principles guiding economic policy making. While Anglo-Saxon countries are dominated by faith in the functioning of unfettered markets, the so-called corporatist approach to economic policy is more prevalent in continental Europe. Corporatism is a consensus-oriented policy approach which aims at achieving high GDP and employment growth as well as low inflation on the basis of explicit, often tripartite agreements involving unions, employers federations, and the government. These agreements tend to take place on a centralized level. Rela-

[27] See Black and Gilson (1998), Becker and Hellmann (1999), and Gompers and Lerner (1999b).

tively centralized wage agreements or pattern bargaining are a defining feature of corporatist countries. Strong competition on labor and capital markets is typically not part of the corporatist setup. Wage competition on the labor market is regarded to be harmful in terms of efficiency and politically unacceptable for its impact on income distribution.[28]

This paper argued that a fully fledged market for IPOs is a key prerequisite for a thriving venture capital market. Undertaking an IPO is more attractive for entrepreneurs in an institutional environment which is protective of shareholders, so that potential bidders for shares are willing to pay a higher price per share, and where the private benefits of controlling companies are small.[29] It was shown that both of these conditions are better fulfilled in Anglo-Saxon countries than in corporatist continental European countries. Stakeholder interests matter more in continental Europe than in Anglo-Saxon countries. A prominent example is the German codetermination law which lets German workers in public firms participate in decision making in firms, thus making it less attractive for firms to go public.[30]

The key question which arises is to identify the underlying politicoeconomic causes for these persistent differences in financial market structures. Labeling managers / entrepreneurs and employed workers as insiders on financial and labor markets respectively, insider protection on both, financial and labor markets, is less prevalent in Anglo-Saxon countries compared to continental European countries. This cross-market, cross-country relationship is potentially important in explaining persistent differences in institutions in these markets and in employment performances across countries. This is in particular the case because a higher level of shareholder protection is conducive to IPOs, which are again a prerequisite for a vibrant venture capital market, which this paper argues has in turn become an important factor in financing structural change and in driving employment growth. Achieving a vibrant venture capital market disrupts the corporatist politicoeconomic equilibrium which typically involves high employment and low shareholder protection as key ingredients. A well-functioning venture capital market enhances competition on the labor and financial market. Venture capital promotes the entry of new firms and is conducive to structural change, thus reducing quasi-rents and undermining the position of insiders on labor and financial markets who are the dominant players in corporatist countries. However, the existence of sizable quasi-rents, which can be shared by both types of insiders, is a prerequisite for the viability of

28 See Fehn and Meier (2001) and Roe (1999).

29 See Bebchuk (1999), and Coffee (1999).

30 See Roe (1999), and Coffee (1999).

corporatism (Tsuru, 2000). A fully-fledged venture capital market is therefore at odds with corporatism.

References

Acemoglu, D. (1999), Changes in Unemployment and Wage Inequality: An Alternative Theory and Some Evidence, American Economic Review, Vol. 89 (5): 1259 – 1278.

Audretsch, D. (1995), The Innovation, Unemployment, and Competitiveness Challenge in Germany, CEPR Discussion Paper 1152.

Bebchuk, L. (1999), The Evolution of Ownership Structure in Publicly Traded Companies, mimeo, Harvard University.

Beck, T. / *Levine,* R. / *Loayza,* N. (1999), Finance and the Sources of Growth, mimeo, World Bank and University of Minnesota.

Becker, R. / *Hellmann,* T. (1999), The Attempted Genesis of Venture Capital in Germany: An Analysis of the "Deutsche Wagnisfinanzierungsgesellschaft", mimeo, Stanford University.

Belke, A. / *Fehn,* R. (2001), Institutions and Structural Unemployment: Do Capital-Market Imperfections Matter? ifo Studien, Vol. 47 (4): 405 – 451.

Belke, A. / *Fehn,* R. / *Foster,* N. (2002), Venture Capital Investment and Labor Market Performance: A Panel Data Analysis, CESifo Working Paper 652, Munich.

Black, B. / *Gilson,* R. (1998), Venture Capital and the Structure of Capital Markets: Banks versus Stock Markets, Journal of Financial Economics, Vol. 47: 243 – 277.

Bottazzi, L. / *Da Rin,* M. (2001), Venture Capital in Europe: Euro.nm and the Financing of European Innovative Firms, Paper Presented at the 33rd Economic Policy Meeting, Stockholm, April 6 – 7, 2001.

Caballero, R. / *Hammour,* L. (1998), Jobless Growth: Appropriability, Factor Substitution, and Unemployment, Carnegie-Rochester Conference Series on Public Policy, Vol. 48: 51 – 94.

– (1999), The Cost of Recessions Revisited: A Reverse-Liquidationist View, NBER Working Paper 7355.

Carlin, W. / *Mayer,* C. (1999), Finance, Investment, and Growth, CEPR Discussion Paper 2233.

Coffee, J. (1999), The Future as History: The Prospects for Global Convergence in Corporate Governance and Its Implications, Northwestern University Law Review, Vol. 93 (3): 641 – 707.

Edwards, S. / *Fischer,* K. (1994), Banks, Finance, and Investment in Germany, Cambridge.

European Venture Capital Association (1996), The Economic Impact of Venture Capital in Europe, Zaventem, Belgium.

Fehn, R. (2002), Schöpferische Zerstörung und struktureller Wandel: Wie beeinflussen Kapitalbildung und Kapitalmarktunvollkommenheiten die Beschäftigungsentwicklung? Baden-Baden.

Fehn, R. / *Meier,* C. (2001), The Positive Economics of Labor Market Rigidities and Investor Protection, Kyklos, Vol. 54 (4): 557 – 590.

Garibaldi, P. / *Mauro,* P. (1999), Deconstructing Job Creation, IMF Working Paper WP / 99 / 109.

Guiso, L. (1997), High-Tech Firms and Credit Rationing, CEPR Discussion Paper 1696.

Gompers, P. / *Lerner,* J. (1999a), The Venture Capital Cycle, Cambridge, MA, London, England.

– (1999b), What Drives Venture Capital Fundraising? NBER Working Paper 6906.

Hall, P. / *Soskice,* D. (1999), Varieties of Capitalism: The Institutional Foundations of Comparative Advantage, mimeo, Harvard University.

Hall, R. (1999), The Stock Market and Capital Accumulation, NBER Working Paper 7180.

Harhoff, D. (1997), Are There Financing Constraints for R&D and Investment in German Manufacturing Firms, ZEW Discussion Paper 96 – 28, Mannheim.

Hellmann, T. / *Puri,* M. (1999), The Interaction between Product Market and Financing Strategy: The Role of Venture Capital, mimeo, Stanford University.

Hellwig, M. (2000), On the Economics and Politics of Corporate Finance and Corporate Control, mimeo, Harvard University.

Hubbard, G. (1998), Capital-Market Imperfections and Investment, Journal of Economic Literature, Vol. 36 (March): 193 – 225.

Jeng, L. / *Wells,* P. (2000), The Determinants of Venture Capital Funding: Evidence Across Countries, Journal of Corporate Finance 6 (3): 241 – 289.

Kaplan, S. / *Strömberg,* P. (2000), Financial Contracting Theory Meets the Real World: An Empirical Analysis of Venture Capital Contracts, NBER Working Paper 7660.

Keuschnigg, C. (1998), Venture Capital: A Case for Investment Promotion, CEPR Discussion Paper 1887.

Kortum, S. / *Lerner,* J. (1998), Does Venture Capital Spur Innovation? NBER Working Paper 6846.

La Porta, R. et al. (1997), Legal Determinants of External Finance, The Journal of Finance, Vol. 52 (3): 1131 – 1150.

– (1998), Law and Finance, Journal of Political Economy, Vol. 106 (6): 1113 – 1155.

– (1999a), Investor Protection and Corporate Governance, mimeo, Harvard University.

– (1999b), Investor Protection and Corporate Valuation, mimeo, Harvard University.

Levine, R. / *Zervos,* S. (1998), Stock Markets, Banks, and Economic Growth, American Economic Review, Vol. 88: 537 – 558.

Mc Kinsey (1994), Employment Performance, Washington D.C.

OECD (1996), Venture Capital and Innovation, OCDE / GD 96) 168, Paris.

Rajan, R. / *Zingales,* L. (1998), Financial Dependence and Growth, American Economic Review, Vol. 88 (3): 559 – 586.

Repullo, R. / *Suarez,* J. (1999), Venture Capital Finance: A Security Design Approach, CEPR Discussion Paper 2097.

Roe, M. (1999), Political Preconditions to Separating Ownership from Corporate Control, mimeo, Columbia University.

Schertler, A. (1999), Venture Capital in offenen Volkswirtschaften – Ein theoretisches Modell, Kiel Working Paper 925, Kiel Institute of World Economics.

Schumpeter, J. (1911), A Theory of Economic Development, Cambridge, MA.

Solow, R. (2000), Unemployment in the United States and in Europe: A Contrast and the Reasons, CESifo Working Paper 231, Munich.

Tsuru, K. (2000), Finance and Growth, OECD Working Paper, ECO / WKP (2000)1.

Weigand, J. / *Audretsch,* D. (1999), Does Science Make a Difference? Investment, Finance and Corporate Governance in German Industries, CEPR Discussion Paper 2056.

Wurgler, J. (2000), Financial Markets and the Allocation of Capital, mimeo, Yale University.