
The Future of Capital Markets

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The Future of Capital Markets

**Research report by Dr. Richard Franz
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Without innovation, a competitive economy cannot be successful in today's world. And innovation needs to be financed. Such investments are often risky and thus require risk capital. As banks are not able to fund such projects sufficiently and effectively, a functioning capital market is required. However, the Austrian and the European capital markets suffer from some considerable shortages compared to their US peer. The implication is that entrepreneurship cannot be financed adequately and that society is oftentimes locked out from such return opportunities.

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I. Introduction

I.A THE CAPITAL MARKET – AN INVESTMENT AND FINANCING PERSPECTIVE

Julia has an idea and she thinks this idea could be turned into business. What she needs is financing for this idea as Julia only has limited funds. She could ask her bank advisor for a loan. Julia could also try to acquire capital from markets, dedicated to the allocation from capital of investors, such as Peter and Anna, to investment projects. Those capital markets follow the same basic principle of supply and demand, where supply is equivalent to investments, and demand is equivalent to financing needs.

When asking the bank for a loan an interest rate is fixed and a period is agreed upon in which the money needs to be returned. This is the concept of debt. The advantage of debt is that it leverages up business. Julia's problem with debt is that if her idea fails she will end up with a pile of payments she has to make which she cannot meet and thus has to file for (personal) bankruptcy.

In contrast to the bank, Peter and Anna focus on achieving return from the distribution of profits of the investment (dividends) or from the stake they own in the company when selling it to other investors at a later time. Neither the return is defined upfront, nor is the duration of the investment, which is by definition unlimited. This is the model of equity. Without equity, and thus collateral, it is very unlikely that Julia will be able to raise any debt in the first place. The advantage of equity is that there is no obligation to repay the money acquired. Furthermore, there are no additional financial burdens on the company as for example no interest needs to be paid on equity. If profits are not distributed to equity holders, the company can use these funds to invest and grow its business.

As already mentioned, both investments are associated with risk. The investment could fail and the invested money could be lost, partially or fully. For bearing risk, the investor will ask for some form of compensation above the risk-free rate¹. This compensation is called risk premium. For holders of debt this should cover loan defaults, and for equity investors the risk premia should also reflect that, by law, debt holders are repaid first when an unsuccessful investment is unwound.

The more investors are willing to take risk, the easier it will be to finance even speculative projects – and probably innovation. It is important to understand that the size of the risk premia, i.e. the price above the risk-free rate the investor is asking for, is a non-trivial concept as it incorporates a lot of unknowns determining whether the investment will succeed or fail, and to what extent money is lost.

Now, if there are no investors (supply), no financing needs (demand) can be funded. It is as simple as that; if there are no projects requiring funds, the investors won't be able to invest their money. In this context, the bigger the market, the easier it will be for an investor to find a suitable investment, and the easier it will be for a project to get funds. This is closely related to the concept of liquidity.

Within a liquid market, Peter or Anna can easily sell their investment to another investor, for example to Paul. A vivid market allows discovering prices for comparable projects and incentivises the investment in the first place, as it is easy for the investors to sell their investment.

¹ This is the rate of return an investor can expect from an investment in a risk-free investment.

Different to the money market, which serves short-term financing needs, the capital market caters to long term investments and projects of businesses and government entities. Both markets are part of the financial market, where financial securities, commodities, and other fungible items are traded. This differs to standard banks, which accept deposits from the public as an intermediary and lend to businesses and consumers.

The function of the capital market is not too different to the function of banks. Capital markets transfer funds from investors to projects with an appropriate term and size. Moreover, they allow a risk transfer. Those market participants that want to increase or decrease their portfolio risk can conveniently do so via transactions in the capital market. Capital markets are an alternative source for debt issues. However, different to (standard) banks, capital markets also provide equity and therefore spur innovation in the economy, such as the idea of Julia. Her project is financed by Peter and Anna in the form of venture capital, which is a term for equity in the early stage of a company. For a market-oriented society in a competitive world, a functioning capital market is thus a key to prosperity.

I.B THE ROLE OF THE STATE

No market can succeed without rules. It must be clear beforehand under what circumstances market participants can trade with each other. Investors shy regulatory insecurity even more than economic insecurity, as the latter is part of their business (market risk). Although a large part of the academic literature tends to model market participants as rational individuals (Markowitz, 1952; Black and Litterman, 1992), markets tend to overreact from time to time (Barber and Odean, 2001; Daniel et al., 1998). This can cause substantial costs to society. A well-observed example is the recent financial crisis, which was also made possible by a heavily under-regulated financial market (Stiglitz, 2009).

Implementing and enforcing rules and regulations is a monopoly of the state and its institutions. The aim is to construct a market which ensures that it suits society in a positive way. However, it is not clear what a perfect set of regulations looks like, as regulations, which try to avoid costly excesses, usually translate into higher financing costs, especially for high-risk projects. Moreover, any discussion about capital markets is political. The capital market with its investors (the wealthy) and investment projects (companies) potentially intersects with a lot of other interests of the (welfare) state. The set of rules for a capitalist-dominated society might be different compared to the set of rules for a socially-dominated society. It might be that the first of the two societies won't tax capital gains to incentivise capital markets but the other society would tax those gains to redistribute money to the less wealthy.

The latter example above is the first way a state can influence the market: taxation. A second way is to implement rules, i.e. regulation. Other ways to influence market participants are government aid, which in some way resembles negative taxation, and promoting awareness for the market actively.

Whatever rules the state imposes on the market, those rules have consequences. This must also be viewed in the context of a globalised world, where money can flow into and out of a state's capital market. In fact, there is nothing as easy and fast to move around the globe as money. The term in focus is competitiveness. This mantra might even be in conflict with other aims or values of society, pointing out the complexity of building a "good" capital market.

Whether the current regulation is good for capital markets will be discussed in the next chapter. In chapter III I outline the challenges for capital markets before I show political implications in chapter IV. Chapter V concludes.

II. The Current State of Capital Markets

Looking at liquidity, the ease of raising capital, and the size of banks as an alternative funding source for debt will allow a rough assessment of the current state of capital markets of various regions in the developed world in order to compare them to the situation in Austria. More interesting is the question why capital markets differ between those regions, where money knows almost no borders.

By definition, within a liquid market the participants are able to buy and sell an asset without causing a major change in its price (Reilly and Brown, 2006). Looking at equity, an indicator for liquidity is the size of the equity market, i.e. the stock market capitalization as a percentage of GDP. The larger the market, the more money is involved. Another measure would be the turnover value of stocks within a given year. For the bond market, a measure for liquidity is the outstanding notional of non-government bonds in percent of GDP. I will not consider the government bond market here, as the focus of this report is on corporations.

Graph 1 shows the capitalization of the stock markets at the end of 2015, their turnover during 2015 (Switzerland 2014), and the outstanding notional of non-government bonds at the end of 2015 in percentage of the region's GDP². Apparently, no other benchmark economy has such a small equity market capitalization and thus also equity turnover as Austria. The highly competitive Swiss economy is provided with an equity market a staggering eight times as big, whereas the US equity market, which is by far the largest in absolute terms, is five to six times the size of the Austrian market. In terms of outstanding non-government bonds, Austria's market is comparable with the one of Switzerland and Japan. This is an indication that the equity side of the capital market is underdeveloped in Austria.

Liquidity naturally increases the attractiveness of a market. This will also make it easier for businesses to raise equity in the first place. Still, the place for raising venture-capital is not the stock market but private engagements. Going public, i.e. listing the company on the stock exchange, is often equivalent to a substantial upscaling of the business as a considerable amount of capital is raised. Furthermore, business angels could see their initial investment skyrocket. This is also necessary as only 5% to 10% of start-ups do not disappear within a short time after inception (Calvino et al., 2015) and an even smaller number turns into sizeably profit-making companies. Thus risk-capital investors have to have a high risk tolerance. Those regions with a sizeable and liquid capital market also provide more venture-capital³, which can be seen in Graph 2. Noticeably, the venture capital market of the United States is 15 times the size of the Austrian market and more than 10 times the euro-area market compared to the size of the economy. The difference is even larger when looking at private equity, which is equity invested into companies not listed at the stock exchange (EBRD, 2016).

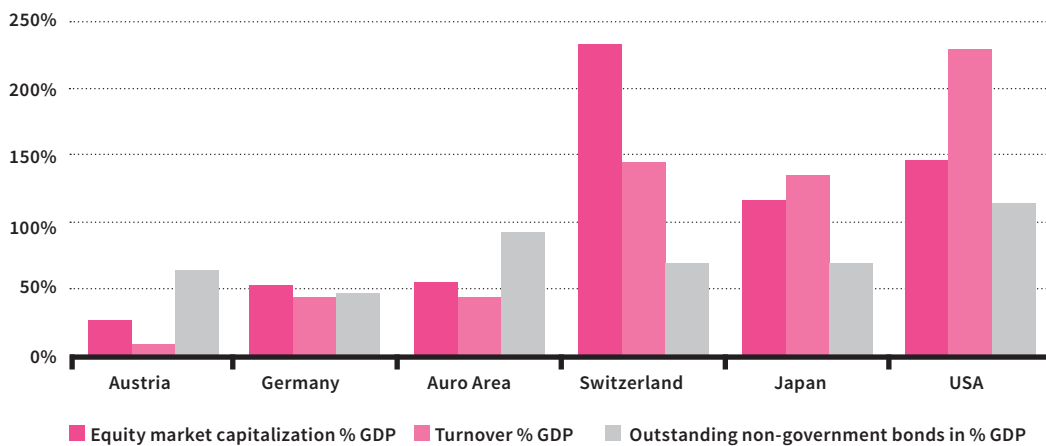
² The numbers for turnover are less reliable than the numbers for the market capitalization, due to different reporting rules and calculation methods. However, the qualitative conclusions do not differ.

³ The world champion with 0.38% of venture capital in percentage of GDP is Israel.

Graph 1 – Equity market capitalization in percent of GDP and outstanding non-government bonds in percent of GDP are measured end of 2015 except for Swiss bond data, which is end of 2014. Turnover in percent of GDP is measured for the year 2015 and GDP is measured end of 2015.

Capital Market Size and Liquidity

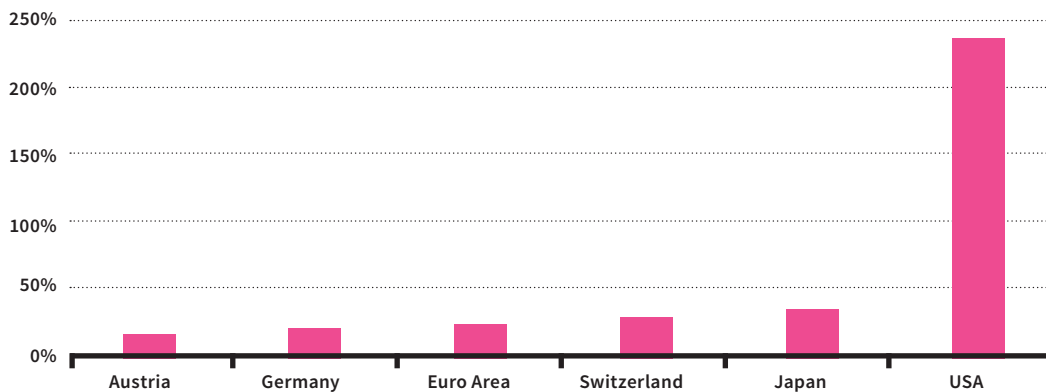
Data source: World Federation of Exchange Members, OECD, Bloomberg, FRED Economic Data.



Graph 2 – Venture capital investment in percent of GDP is measured end of 2014. This includes seed/start-up/early-stage and later-stage venture capital.

Venture Capital

Data source: OECD.



Where else would European and Austrian companies get their capital from if equity markets are this small? One way to answer this question is to compare the credit given by banks to the private sector in comparison to the stock market size in percentage of the region's GDP. Graph 3 hints at a more bank-credit-reliant Europe and a more capital-market-reliant United States. Austria, Germany, and the euro area in general are equipped with a banking sector 50% larger in terms of private nonfinancial sector credit from banks in percent of GDP⁴. Switzerland is exceptional in this context as not only the Swiss capital market is sizeable but also bank credits.

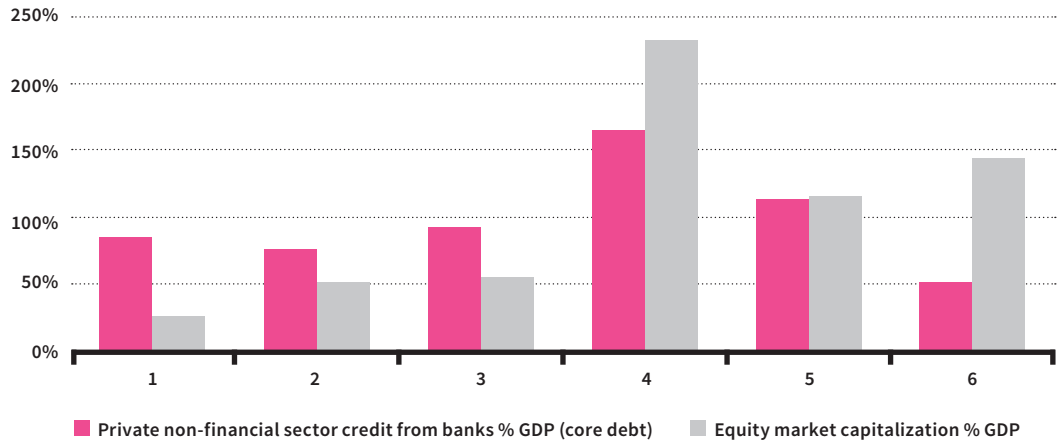
The consequence is that the size of the euro banking sector with an average of about 280% in 2013 exceeds by far the size of the US banking sector, which is less than 100% of the economy in terms of GDP (Graph 4). The Austrian banking sector is close to the average of the euro area banking sector.

⁴ This includes consumer credits in all markets.

Graph 3 – Equity market capitalization in percent of GDP is measured end of 2015. Private non-financial sector credit from banks in percent of GDP (core debt) is measured end of 2014.

Funding of Companies – Banks vs. Stock Market

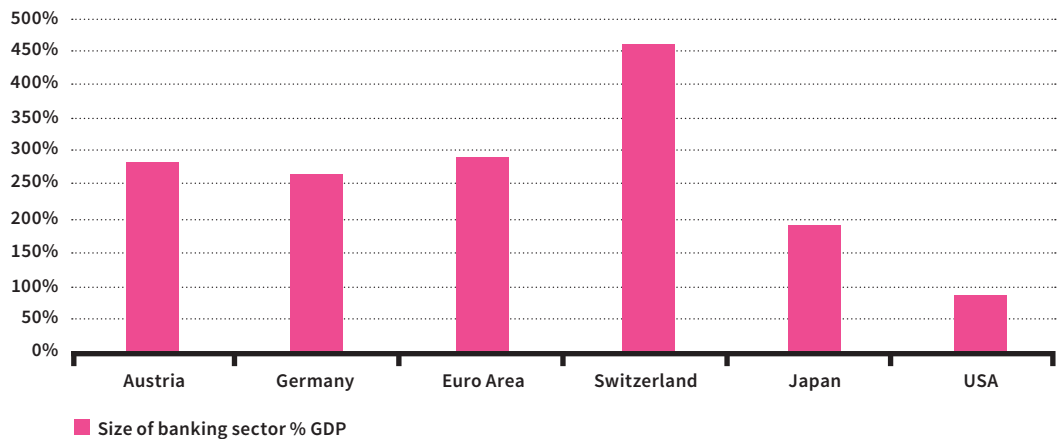
Data source: OECD, BIS.



Graph 4 – Size of banking sector in terms of the balance sheet total in percent of GDP is measured end of 2013.

Size of Banks

Data source: Helgi Library.



The reliance on banks has important implications for an economy's ability to provide capital for innovative and risky projects. In the aftermath of the financial crisis, government bodies around the globe started to increase their regulative grasp on the financial and banking sector, with the aim that those who were causing the cost should burden these in the long run. Furthermore, the regulation should prevent future financial crises with the banking sector as the epicentre. However, more regulation also translates into higher credit costs and thus costs on the economy (Keuschnigg and Kogler, 2014).

In Europe the cornerstone of banking regulation is Basel III. Capital requirements were increased from 2% to 4.5% of common equity of risk-weighted assets. Additional capital buffers were introduced: A mandatory capital conservation buffer (2.5% of risk-weighted assets) and a discretionary counter-cyclical buffer, which the national regulator can set between 0% and 2.5% of risk-weighted assets if there is excessive

credit growth. Global system-relevant banks are required to hold an additional 1% to 3.5% and other system-relevant banks can be required to hold an additional 0% to 2%, which is also set by the national regulator. For Austria, the national regulator (FMA) imposed 2% for the largest institutions. Banks will also have to hold enough high-quality liquid assets to cover net liquidity outflows during a period of 30 days in distressed times. Furthermore, limitations on the leverage ratio between the core capital and the total exposure are in preparation (OeNB, 2016 and BIS, 2010, 2013, 2014a).

Banking regulation in the United States is strongly fragmented. Two cornerstones are the 2700-page Dodd-Frank Act and a version of Basel III. The Dodd-Frank Act gives stronger supervisory power to several government institutions, enables authorities to take control of dangerous institutions, and should thus prevent any too-big-too-fail problems. The act has not yet been fully implemented. Basel III is also applied by the US and basically follows the proposals of the BIS. Deviations concern a more conservative definition of capital. For example, in Basel III the inclusion of liabilities in additional capital is allowed, whereas in the US only equity instruments are permitted. Furthermore, the leverage ratio exceeds the Basel III suggestions for US banking organisations considered to be globally systemically important (BIS, 2014b; Getter, 2014).

It is thus not regulation that makes the banking sector in Europe look more troublesome compared to the US. In fact, it is the slowness of the correction of bank balance sheets. In 2008 the Troubled Asset Relief Program granted the Secretary of the Treasury authority in the US to either purchase or insure up to USD 700 billion in troubled assets owned by financial intuitions. This helped to restore investors' confidence, who themselves were keener to refinance banks more quickly (Webel, 2013; Bloomberg, 2016). European banks are still regarded as less efficient, a lot of countries are overbanked, and bank balance sheets still look dire for a number of institutions. This especially applies to larger institutions in Europe (IMF, 2016). With the introduction of the banking union and the ban on bail-outs, a comprehensive framework was established in the Eurozone to prevent further banking crises (European Commission, 2014). Obviously, the union with its no-bailout-rules was introduced in a time when a number of European banks were still not out of the woods with some EUR 900 billion of non-performing loans (IMF, 2016 and Reuters, 2016).

This increases the lending capacity of US banks compared to their European peers, which is dire for Europe's small companies. In fact, the difference between standard SME⁵-financing between the US and the EU is small. In both regions SMEs rely primarily on banks and not on the financial markets. However, Europe's economy relies more heavily on SMEs than does the US economy. In the US about 80% of companies employ less than 10 people, whereas this number is 93% in the EU. The figure for larger companies, i.e. above 50 or 250 employees respectively, is 4% and 0.6% in the US and 1.2% and 0.2% in the EU (WSBI/ESBG, 2015). Thus, a larger fraction of companies in the US has access to capital markets simply because of their size. The size of companies is itself one reason why equity markets are smaller in the EU⁶. But there are more reasons why risk capital markets in the US are more vivid compared to EU markets – and especially Austria's capital market.

One reason might be taxation. In fact, a major headwind to companies going more into equity and less into debt is taxation. Yet there is no difference between the EU and the US as debt costs are deductible from corporate profits, but the cost of equity is not (Fatica et. al, 2012; Kemsley and Nissim, 2002). This greatly favours debt over equity and has been strongly criticized by academics (Graham, 2000; Kemsley and Nissim, 2002; Hovakimian et al., 2001; Pagano and Pica, 2012). In contrast to corporations, investors enjoy better regulation in the US compared to most European countries. Whereas the relevant individual tax rate is basically 20%, low-income earners enjoy lower taxes between 0 and 15%. In Austria the rate is 27.5%, which is more at the upper

⁵ Small and medium enterprises

⁶ Compared to the US, the EU market has been a single market for a relatively short time and the EU capital markets are very regional.

end of the standard 20% to 30% in most EU countries. The biggest difference between the US and the EU system is that losses incurred in one year can be carried forward on an individual level in the US (Eurostat, 2015; RIS, 2016; IRS, 2016). This implies that society takes part when the investor has made an annual gain, but avoids participation in bad years. Considering the risk associated with the investment, this translates basically into a tax-option to the state at the cost of the individual. In Austria, where long-term capital investments were tax-free, this was not an argument until the financial crisis.

The same kind of imbalance between regulation on corporations and individuals is also true when looking at bankruptcy laws. In the US, bankruptcy laws provide a framework in which companies can rehabilitate and reorganize themselves. A number of European countries adopted changes to their bankruptcy laws in the first two decades of the new millennium, often inspired by the existing US bankruptcy laws (Wessels, 2014). The process of moving Europe's insolvency codes forward is also supported by the European Commission and seen as part of a capital-market union (Jourová, 2015). However, when looking at private insolvency, it's better to file for bankruptcy in the US. In Austria, for example, all assets of the individual will be liquidated. Additionally, for a time period of seven years, all of the individual's income above the defined subsistence minimum will be seized (WKO, 2016). In the US, the same code applies to businesses and individuals, where individuals basically can decide between liquidation and rehabilitation. In the first case, assets will be seized, but the individual's income won't be touched. In the second case the individual's home will not be seized and the maximum length of the down payment of debt will in any case be five years (US Courts, 2016). Thus, taking risk as an individual is less expensive in the US. This is especially relevant for entrepreneurs who do not have access to risk capital (equity), and for creditors (banks), who will usually ask for collateral.

It does not help that 40% of potential entrepreneurs in Europe are put off by the fear of failure, which is three times the number in the US, as stated by Kroes (2014), a former EU Commissioner for the Digital Agenda. That a "do-it-attitude" is missing in Austria and in general in Europe has also been pointed out by other studies, such as Dömötör et al. (2013). Putting it differently, the risk appetite is larger in the US.

To foster entrepreneurship and encourage more people to found businesses, the Austrian government set up several programs providing know-how and some sort of financing. The fact that about 77% of private equity investments originate from government funds and entities, whereas this number is just 5.2% for the whole of Europe (in 2014), implies that a number of risk capital sources are uncultivated. For example, institutional investors such as pension funds, insurance companies, and endowments make up almost 50% of the risk capital market in Europe. In Austria this number is 0%.

Effectively, the Austrian regulator does not stimulate the build-up of classic institutional investors, which would also benefit average citizens. One way of saving for individuals would be via pension funds or insurance schemes, especially if they lack the ability and knowledge to do so. Austria is ranked 10th in financial literacy out of all OECD countries (excluding the USA) according to a recent study (OECD/INFE, 2016). However, as Fernandes et. al (2014) show, teaching how to take care about money is much more difficult than actually expected. A Bloomberg article (2016) put it that way: "If someone is truly hopeless with money, a lesson about compounding isn't going to help."

With a mandatory pay-as-you-go pension system and a rather ill-structured voluntary capital market oriented programs, not geared towards the risk profile and knowledge of the investor, a small total of just EUR 19.8 billion (5.8% of GDP) was under management of pension funds in Austria in June 2016 (FMA, 2016). This compares to USD 427 billion in Germany (12.7% of GDP), USD 804 billion in Switzerland (118.7% of GDP) and some USD 21 779 billion in the US (121.2% GDP) in 2015 (Willis Towers Watson, 2016). Looking at assets in the insurance sector, which is also heavily regulated, 38% of GDP was under management by the Austrian insurance sector (this excludes dedicated pension savings/plans). This compares to some 62% of GDP in

Germany, and an EU average of about 70% of GDP in 2014 (Keuschnigg and Kogler, 2016), whereas in the US this figure is some 48% of GDP (FIO, 2015). The gap is also not filled in Austria by endowments. Those endowments which are solely benefiting individuals (Privatstiftungen) will unlikely see any new inflows due to changed regulation and the rules for charitable endowments have changed recently but are not competitive yet (Verband Österreichischer Privatstiftungen, 2016; BMWFW, 2016).

Summarizing, the source of funding for risk capital for start-ups and later-stage entrepreneurs is rather limited. Banks are not the best alternative, and going bankrupt is more expensive in Austria and Europe compared to the US. Important institutional investors are missing and the build-up of capital and the investment in risky projects are not encouraged from the perspective of an investor, taxable in Austria or Europe. The fact that Europeans (and Austrians) fear failing more compared to the US is not helping entrepreneurship to flourish under the current set-of-rules either.

III. Challenges for a Capital Market in Austria

The structural differences between the US and Austrian capital market have two implications: Innovation does not find its way into the business world to the extent it would be possible and a lot of individuals either forego or are virtually excluded from benefiting from return opportunities capital markets could offer.

To explore these challenges further, let's consider a student just about to graduate from an Austrian university or college of higher education. These are places where new knowledge is being researched and taught. This student is equipped with an idea she or he thinks could be successful in business, is highly motivated, and has no obligations yet. What's probably missing is the experience to found a company, the right team for this venture, and equity.

Asking for a bank credit with no equity will most likely not be successful. Furthermore, the risk of failing and potentially ending up with a large pile of personal debt might simply scare off the potential founder from following the idea. In any case this path would not equip the wanna-be-founder with important connections and knowledge to develop the business idea further.

Yet things are not that bad. Austria has a diverse landscape of institutions helping the potential founder. There are public organisations (e.g. Austria Wirtschaftsservice), some universities, which are equipped with start-up-centres (e.g. WU Vienna, TU Vienna, University of Vienna), and even some banks, which provide support in dedicated entities (e.g. Erste Bank). At these institutions the potential founder will get support on various matters concerning founding a company and potentially also financial aid for the founding period.

However, as the idea develops, only a very limited number of such Austrian ventures will get access to the (substantial) equity they need for their project to grow (graph 2; Dömötör et. al, 2013; derstandard, 2016). Furthermore, most existing Austrian business angels, venture capital and private equity funds (e.g. Speedinvest, 3tscapital) concentrate their activities on IT solutions, which ignores a wide branch of other potentially innovative areas. A solution to this problem for the founder is to exit Austria and found or expand in other countries like the UK or US. Thus Austria provides a lot of aid to ventures to boost innovation in business, but fails to harvest the return for the Austrian (or even European) economy.

Innovation is key for a country's economy like the Austrian to stay competitive internationally. And this innovation needs to be financed. The backbones of the Austrian economy are the many SMEs. Some of these SMEs are market leaders in their niches and often termed hidden champions, as the public is not aware of them. These SMEs are mainly financed through bank credit and equity invested from the owning entrepreneur or family. Yet some new projects require capital, which either might not be available in form of credit or only under the condition of raising further equity. For most SMEs capital markets are inaccessible as the costs attached with issuing (private) equity or debt and finding investors is burdensome. Accessibility to capital markets is a question of the size of the company.

At this point it is important to understand that risk capital and debt investments for ventures and SMEs require a deep knowledge about the business and the associated

risk. These investments are usually held directly. Thus, start-up-centres, business angels and private equity managers will be (the scarce) local specialists. Investments in funds of such specialists can only come from sophisticated investors, who can evaluate managers, have access to them, and have a certain knowledge about the investments made. Thus, this will not be individuals of the general public but rather institutional investors and, on a smaller scale, wealthy individuals. However, institutional investors are virtually missing in Austria or do not have the possibility to invest due to regulation.

In any case, the marginal effect of one extra euro invested by Austrian investors such as pension funds in the Austrian capital market itself should not be exaggerated. Investors following one key advice from financial theory, namely diversification (Markowitz, 1952), would not invest all of their funds in Austria. Otherwise these investors would be subject to a home bias (Tesar and Werner, 1995; Coval and Moskowitz, 1999). Thus only a fraction of (new) Austrian money invested in capital markets would find its way into the Austrian capital market. If investors under-diversify, they should either have a good reason for it or their behaviour might simply be due to a lack of financial knowledge which can prove costly. Thus it is important to win foreign investors for providing risk capital as well.

The average Austrian citizen could participate via pension funds, insurance products or special investment funds, which could be taken (in a small fraction) into the investor's portfolio. This would enhance the diversification of the portfolio, as the typical Austrian household invests its financial assets primarily in risk-free deposits (OeNB, 2016). However, with the regulator excluding investments in risk capital for pension funds and as dedicated risk capital funds are generally not investable for retail investors, it is not possible for average citizens to participate.

Even if dedicated funds were investable, the investor would need to rely on advice, which is yet another drawback. Sophistication in the allocation of funds is not only important when investing in venture capital or equity and debt of SMEs, but is generally needed when participating in capital markets. Either the investor herself is aware of concepts such as risk premia, financial planning, and behavioural biases and can thus invest independently on capital markets. Otherwise the investor should seek professional and cost-efficient⁷ advice, which will hardly be available. The consequence is that the average citizen will not be able to profit from the return opportunities provided by capital markets to the extent wealthy individuals can.

Summarizing, there are considerable challenges in building up a sizable Austrian capital market fitting the needs of society. Due to the structure of the economy there is mainly need for private and venture capital to fund innovation. The supply side lacks key institutional investors and the access of most individuals to investments in capital markets is thus inefficient.

⁷ Cost efficiency is another important success factor in the investment process (Dellva and Olson, 1998)

IV. Political Implications

In this section I will outline measures for the demand and supply side of capital markets. The measures focus on the Austrian perspective but fit numerous countries in the European Union lacking a functioning capital market.

IV.A A COMPANY PERSPECTIVE

Take innovation to business

When research and development meets consumer or business needs, innovation feeds into society. The places where research and development is performed outside large companies with dedicated R&D departments are universities, colleges of higher education (“Fachhochschulen”), and research institutions. This is true for Silicon Valley⁸ but also for Austria. However, the business implications and opportunities emerging from these institutions have been basically neglected by the government, the research institutions themselves, and society in Austria. Initiatives have already been set up in this area at some Austrian universities⁹ but this should be heavily enforced and supported financially.

This means that the government should provide extended financial support¹⁰ to research institutions in the build-up and maintenance of start-up centres which serve as one-stop shops. These centres should raise (i) awareness for founding a company at their home institution, (ii) support the building of teams within and across research institutions, (iii) provide information, office space and alike directly on campus, (iv) provide initial funds in the form of equity¹¹, and (v) link to business angels and venture capital investors for the build-up of sizeable equity (see (7) below).

These centres must be led by experts of the venture specialists who have relevant experience. Research institutions could build upon their networks to invite entrepreneurs onto boards. Cooperation between universities in form of clusters could increase efficiency of such centres but should only take place on a regional level.

SMEs

Going public is no option for these enterprises, and thus alternative funding sources such as private equity investors and access to the debt market would improve financing conditions for SMEs. However, most SMEs will simply lack the size to access these markets themselves.

To support this, the government could found and endow a politically independent counselling entity, optimally associated with the Vienna Stock Exchange, which

⁸ The success of Silicon Valley is due to the close cooperation between the University of Stanford, entrepreneurs, and the size of available risk capital.

⁹ For example inits (TU Vienna and the University of Vienna) or the WU Gründungszentrum (WU Vienna).

¹⁰ This should be understood as strictly additional to the research and teaching funds.

¹¹ The research institution would become limited stake holder of the spin-off which could lead to sizeable flows to the institution in the case of success and would provide its students and employees with important experience. The StartX-Fund at the University of Stanford is following the same concept.

advises SMEs on capital markets and private equity. This entity should furthermore serve as a platform to connect SMEs with private equity investors.

Moreover, there could also be the possibility of pooled bonds for SMEs, in which the entity would issue bonds with standard maturities, which are backed proportionally by the SMEs requiring funds. Introducing different levels of risk categories would imply different yield levels.

The advantage for SMEs would be to obtain an additional source of funding, which would not be accessible to them otherwise. For the investors this would provide access to an additional and attractive asset class in a low-yield world. Society would profit from more innovation and investment opportunities.

Incentivising building up equity

Similar to many other countries, the cost of debt is tax deductible, whereas the cost of equity is not. This is a strong argument for financing a company via debt instead of raising equity. One way to eliminate this debt advantage is to make the cost of equity tax-deductible. Another possibility would be to eliminate the tax shield for debt and to decrease corporation tax proportionally. As planning reliability is important to companies this measure should be gradually introduced over a time frame of at least 10 years.

Allowing to learn from mistakes

Closely related to (1), Austria's bankruptcy laws should be screened for giving the founder the possibility for a quick re-start. Failing with the first business idea should not imply that the founder is unnecessarily prevented from re-entering the market with another idea soon thereafter. Such measures combined with sufficient availability of risk capital could help foster entrepreneurship substantially.

Regulation on entrepreneurship

Reducing red tape, facilitating the foundation process (one-stop shop), and slimming down the industrial code would allow more room for entrepreneurs and innovation. Reducing the cost of labour permanently and not only for the first few employees would furthermore support the creation of jobs.

Building a strong stock exchange

A vivid market place will attract more companies. This could be enforced by (i) building up an innovative SME segment in the market (point 2), (ii) incentivising equity (point 3) and (iii) by fostering local investors (points 8, 9, 10 below). (iv) Regulation should be slim and costs for companies affordable. Furthermore, (v) a regional CEE stock exchange could be built up with Vienna positioning itself as the capital hub for the region.

European Capital Markets Union

The Capital Markets Union seeks to deepen and integrate capital markets, lower the cost of funding and make the financial system more resilient. Cross-country obstacles should be reduced, such that companies get easier access to funds from investors of other countries and vice versa. The vision is to build a single capital market which benefits all members of the European Union. Although a lot of points and regulative implications are still unknown and only a vision at this point, the Austrian government should strongly back this plan as this would allow more foreign risk capital to fund innovation in Austria.

IV.B AN INVESTMENT PERSPECTIVE

Individual investors

As argued above, the effective participation of individuals in capital markets is complex. Firstly, it would be necessary to broaden the knowledge of the population about financial markets and economic relationships considerably. This could be done by offering carefully designed classes at various levels at school, teaching basic principles of the economy, markets, and money. This would raise awareness for the topic and might also help to avoid excessive indebtedness at a young age. Furthermore, it can help people to distinguish good advice from bad advice. Similarly, introductory courses could be offered for the general public from universities and other institutions of education. This would require additional funding to these institutions.

The majority of individuals will rightly outsource their investment activity to capital markets to increase their return. The most important reason for long-term saving is to cover the individual's economic needs when getting retired. The Austrian government already incentivises additional pension savings, which are partly invested in capital markets. However, the design is poor, expensive and considers neither the risk aversion, nor the age of individuals. Diversification is still insufficient and misses important investment opportunities. Imposing a capital guarantee already at a young age implies excessive hedging costs and will counteract any innovative long-term allocation. Redesigning the system with the help of dedicated experts should revitalize the product and make it useful to savers.

The government could also think about diversifying the state pension system away from a pure pay-as-you-go system to a mixed one with a mandatory personal savings account, which is then invested in capital markets. The Swedish pension system could serve as a role model in this context (Severinson and Stewart, 2012).

Another important incentive for individuals to save on capital markets and thus actively take risk is to allow carrying forward losses incurred in one year. Charging investors who take risk when they overall gain with their strategy within one financial year, but leaving them with the full loss in bad years clearly scares investors away from taking risk. Balancing losses of the investment in capital markets with other types of income as labour income would further incentivise investments in capital markets.

Institutional investors

Following the advice of point (8) would imply the build-up of sizeable pension funds. Part of this money would also be invested in Austria and potentially into the venture and SME sector.

Due to heavy regulation of the insurance sector the impact of this institutional investor is rather limited. Yet insurance companies should be given the opportunity to invest in the non-existent venture (point 1) and SMU capital market (point 2).

Unlike endowments benefiting individuals, charitable endowments virtually do not exist in Austria. The government introduced regulation in January 2016 to set up the framework for the foundation of such endowments. Removing the taxation on capital gains would (i) allow the institutions to build up endowments more quickly, and thus (ii) support the charitable purpose to a full extent, (iii) would incentivise investments in capital markets and make the regulation (iv) competitive to Switzerland and Germany.

Funds

Investment funds serve as a vehicle to allocate investments of private investors and institutional investors to the dedicated purpose of the fund. Investable and liquid risk capital funds as private equity, and venture capital funds, which give investors the opportunity to invest into these asset classes, are basically non-existent for the Austrian market. In general, the Austrian investment fund regulation is strongly prohibitive to investing in the venture and SME market. Thus the regulator should revise rules to allow for a greater flexibility of investment funds.

An additional possibility is to implement legislation for small business investment companies as proposed by Halling et al. (2005), which are specialized leveraged investment funds constructed to provide additional equity to SMEs. The authors emphasize that these should be privately funded vehicles without any influence from the government.

V. Concluding Remarks

Capital markets are an efficient way to allocate capital to innovative companies. Furthermore, they allow individuals to participate in the success of an economy and its businesses.

However, especially risk capital markets in Austria and Europe are insufficiently developed, suppressing innovative forces. The banking sector does not provide all solutions needed to foster entrepreneurship in an economy based on innovation. Firstly, financing ventures via credit is often not feasible due to the large cost put on the entrepreneur in case of failure. Secondly, banks have to downscale their business due to regulation, making credits more expensive for risky projects. This is also not good news to the many SME companies in Europe. Unfortunately, most SMEs are simply closed out of capital markets due to the cost of entering these. A lack of risk appetite in Europe for entrepreneurship and investments in the capital market does not help in this context.

The measures outlined could help building a capital market which suits the needs of businesses and benefits investors in a country such as Austria or similarly structured economies in the European Union. The European Commission has recognized the lack of risk capital and thus introduced the vision of building a Capital Markets Union, which should only be one of many steps in engaging European risk capital markets and fostering entrepreneurship. It depends on society whether it embraces the opportunities provided by capital markets, or whether a risk for the economy materializes, namely the continuous loss of innovation.

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INSTITUTIONS

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