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Capital Controls As A Determinant of Competitiveness in the European Union

Abstract:

This study contends that path dependence has allowed European Monetary Union (EMU) member states to exploit obscurities in rules of Treaty of the Functioning of the European Union in order to implement capital controls. Furthermore, it suggests that variation in implementation of capital controls has led to a divergence in competitiveness as a result of the 2010 European debt crisis. Utilizing a large-N statistical analysis of exchanges rates, the study goes on to examine the effect of varied strength in capital controls on competitiveness. An OLS regression model of several capital control mechanisms suggests that competitiveness of an EU member decreases when the state implements weak capital controls. Significantly, the study concludes that the effects of capital controls limiting competitiveness depend on the interaction effect of profitability in investment. Finally, it provides an analysis of capital controls in global exports in the Republic of Slovakia from 1990-2011. The case of Slovakia offers evidence that the existence of weak capital controls conditioned by high investment profitability decreases exports.

Introduction

Causes of the 2010 European debt crisis are a topic of intense debate between scholars and public officials. Academic researchers have determined that the European crisis was a consequence of fiscal or monetary problems (Buitert and Rahbari, 2010; Pisani-Fas Caserry, 2012; Lane, 2012). According to their theories, excessive spending and pro-cyclical behavior generated an imbalance of payments between members of the European Monetary Union members. (Lane, 2012; Baskaran and Hessami, 2012). Others suggest that divergences in the competitiveness of exports led governments to accrue massive debt. (Wihlborg et al., 2010; Belke and Dreger, 2011; Bibow, 2012; Gros, 2012). By analyzing competitiveness, the following study argues that varied implementation of capital controls by European Monetary Union members also contributed to the 2010 debt crisis. The assertion is predicated on the fact that gaps in the Treaty on the Functioning of the European Union allowed member states to implement prohibited types of capital controls.

In framing this argument, the study operates under a number of key assumptions regarding the institutional structure of the Treaty of the Functioning of the European Union (TFEU). First, the TFEU contains set institutional rules that pose constraints on the behavior of members. Deriving benefits from membership in the

EU is contingent on compliance with “rules of the game” outlined in the TFEU (North 1990). Second, although the constraints of the European Union may be given exogenously they have become malleable or obsolete over time due to positive feedback and path dependence. Obscurities in TFEU regulations allow member states to circumvent institutional rules and implement capital controls. Specifically, members have used market-based capital controls to bypass institutional constraints on capital flows across borders. This exploitative practice is only possible because banning market-base capital controls was never considered in the original design of the TFEU. Third, obscurities in the rules regulating capital controls are self-reinforcing because as they exhibit significant benefits to members seeking to increase the competitiveness of their exports. Variation in the use of market-based capital controls explains divergence in competitiveness and the resulting imbalance of payments prior to the 2010 European debt crisis.

The present study has two primary objectives. First is to understand how capital control mechanisms came into existence despite TFEU restrictions. Second is to determine if variations in the implementation of capital controls explain the divergence in competitiveness of exports. This inquiry requires an understanding of the role competitiveness and capital controls played in the debt crisis, knowledge crucial for tracing the implementation of capital controls to logic path dependence and positive feedback

NOTICE: It should be made clear that this project is only interested in the rapid *inflows* of capital affecting exchange rates. The *outflow* of capital certainly influences a country’s competitiveness, such as massive divestment siphoning credit from nascent markets, but is not the point of interest in this paper. Credit expansions affecting exchange rates are related only to the openness of inflows of capital, not the restrictions of capital flows out of a market. Policies that restrict capital outflows are another issue area that may explain divergence in competitiveness between EMU member states, and may provide opportunities for future iterations of this project.

Competitiveness and Capital Controls

Academics and policy officials agree that the European debt crisis is a result of varied competitiveness in exports. (Stockhammer, 2011; Bibow, 2012; Gros, 2012). According to their arguments, competitiveness in

exports determines the circumstances under which countries are able to generate enough revenue to cover spending. If a government cannot generate enough revenue, it accumulates debt and, over time, will experience an imbalance of payments. This reduces the value of government and privately-held debt, which may cause rapid outflows of capital. Significant divestment can shrink a nation's economy severely. The type of negative growth in several EU members characterized the aftermath of the debt crisis in 2010. To prevent debt accumulation and economic decline, states must generate enough export revenue to support national spending. Thus, a country's competitiveness in exports is linked inextricably to the size of its economy.

The majority of research on competitiveness in the EU focuses primarily on the production costs of exports. Production costs are crucial because they determine the competitiveness of exports and the rise of consumption spending in a fixed exchange rate system. Countries with high production costs that make goods prohibitively expensive have been known to buy currency from other countries which with to purchase their own exports. This causes a cycle of consumption spending that, in turn, leads the purchasing country's exchange rate to rise relatively to those with more competitive exports (Perez-Caldentey and Vernengo, 2012). When a country's exchange rate increases, it reduces the competitiveness of exports thereby shrinking a country's revenue stream. As a consequence, countries will not be able to cover consumption spending and can eventually face an imbalance of payments. According to Perez-Caldentey and Vernengo, the core nations of the European Monetary Union (Germany, The Netherlands, France, Belgium, any country in the industrial north) historically maintained their production costs below those of peripheral nations (Greece, Italy, and other countries in southern Europe) and fueled other members' imbalances of payments.

The literature on the European debt crisis suggests that the variation in competitiveness of European Monetary Union members is a result of differences in labor wages and manufacturing productivity. (Belke and Dreger, 2011). According to current scholarship, a country's real exchange rate appreciates when wages increase. This is due to the fact that wages represent a significant portion of production costs and are factored into the value of exports on the market. In addition, increases in manufacturing productivity are connected to real exchange rates since gains in productivity allow manufacturers to export more goods per unit of capital. Bibow argues that the

variation in productive industrial policies between European Monetary Union (EMU) members caused an “increase in wages relative to rate of productivity” in deficit countries. According to Bibow’s logic an increase in productivity in industrial sectors would mitigate the effects of high wages on currency appreciation (Panico 2012).

While policies that target both productivity and labor wages are crucial to explaining production costs, there are other policy areas that explain competitiveness in exports. This study indicates that another element of competitiveness - the control of capital movements across borders – a factor examined less extensively by scholars, helps to explain the divergence of exports in conjunction with the effects of productivity and wages.

Capital controls influence the competitiveness of a country’s exports due to their effect on real exchange rates. Capital controls determine the ease with which investors can bring money into a market and, ultimately, the degree of influx of foreign credit. Capital controls can prevent appreciation of exchange rates caused by rapid expansion of national credit. Thus, a country with weak capital controls and accelerated inflow of capital is susceptible to excessive and irresponsible borrowing. This affects competitiveness in two ways. First, the growth in consumption causes faster growth in the non-tradable sectors such as rents and loans that, in turn causes the real exchange rate to appreciate. Secondly, according to the Balassa Samuelson theorem, inflation from rapid growth in the non-trade will spill over in the tradable sector. Inflation in the tradable sector first causes an increase in the cost of production followed by a rise in a country’s real exchange rate, and an eventual decline in competitiveness of exports. A drop in revenue from exports can prevent a country from meeting its balance of payments. Strong capital controls, however, limit the effect that credit expansion has on exchange rates and help maintain exports’ competitiveness. This is because capital controls limit the amount of capital investors can inject into an economy. As such, even if a country has a high margin of profitability, global investors cannot introduce capital into a market easily and irresponsibly. Therefore, stronger capital controls, in effect, prevent the rapid expansion of credit that causes appreciation in a country’s real exchange rate.

Capital Controls and Competitiveness in The European Monetary Union

The positive effect capital controls have on the rapid appreciation of exchange rates indicates that capital controls may explain the disparity in competitiveness of exports as well. This consideration is pertinent given the history of inflows of capital from northern EMU (European Monetary Union) members fueling consumption spending of the southern EMU countries. After 2001, the northern European countries obtained an account surplus which was then invested in other parts of the eurozone. These capital flows from the north fueled massive construction and consumption spending in the southern states, which is likely to have caused appreciation in the exchange rates of the southern countries. This does a great deal to explain varied competitiveness of exports and the ensuing southern countries' deficits in their balance of payments.

Another salient question is how a divergence between European Monetary Union members in the implementation of capital controls can appear. The TFEU explicitly precludes any control of capital flows between members. In the 1993 provisions of the TFEU, the illegality of restrictions on capital movements was detailed in Articles 63 and 64. As it states in Chapter 4, Article 63, Section 1, "*Within the framework of the provisions set out in this Chapter, the movement of funds between Member States and third countries shall be prohibited*" (European Union 2008).

Additionally, the TFEU only furnishes the European Parliament and European Council with the authority to implement capital controls. Chapter 4, Article 64, Section 2 states, "*Whilst endeavoring to achieve the goal of free movement of capital between Member States...the European Parliament and the Council, acting in accordance with the ordinary legislative procedure, shall adopt a measure on the movement of capital to or from third countries involving direct investment...the provision of financial services or the admission of securities to capital markets.*" (European Union 2008).

Both sections of the TFEU state the prohibition against capital controls by EU members explicitly. At first glance, this may appear to undercut hypotheses that explain EU members' competitiveness by way of varied implementation of capital controls. Examining the history of capital controls in the EU, however, one observes numerous instances of states implementing those controls for competitive purposes. For example, in March 2013 Cyprus conducted formal meetings with EU officials on the implementation of higher capital controls in order to

prevent currency speculation (Associated Press 2013). Portugal also has implemented considerably stronger capital controls than the rest of the EU to reduce its account deficit (World Bank 2012). While both of these instances concern the the outflow rather than inflow of capital, their actions illustrate how capital controls are implemented by EMU member states due for concerns of economic solvency and competitiveness in real exchange rates. Taking both examples into consideration, once is compelled to ask, “how is it possible that European Monetary Union members have varied capital control policies despite the rules outlined in the TFEU?,” a question that must be answered before a thorough analysis of capital controls can be made.

Literature on positive feedback and path dependence offers one explanation for the emergence of capital controls despite TFEU regulations. The logic of their analysis rests on the notion that gains derived from exploitations of gaps in the TFEU are self-reinforcing. Krasner’s suggests in his observation of institutional reproduction, “path dependent patterns are characterized by self-reinforcing positive feedback” (Krasner 1988). When actors and institutions enjoy the stability and benefits derived from membership, they will take all necessary measures to guarantee their continuation. According to the functionalist view, the behavior of actors will adapt to the structure of an institution and resist change when they derive benefits from acting inside the constraints of an institution (Ikenberry 1994). In the case of EU members implementing capital controls, actors will not implement capital controls since they derive gains from cooperation. If, however, actors can derive significant gains from obscurities or “gaps” in institutional rules, they will make sure the gaps remain without revision.

This project contends that implementation of capital controls within the TFEU framework is an outgrowth of positive feedback from exploitative practices that result in path dependence. This exploitation is possible because the aforementioned clauses of the TFEU do not clearly define capital controls or set guidelines for their implementation. Countries are able to adopt indirect mechanisms that mirror the effects of standard capital controls (tariffs, quotas, etc) in order to prevent the currency - appreciation effects of rapid credit inflows. The benefits derived from implementation of these indirect capital control mechanisms, specifically the

competitiveness of exchange rates, discourage EMU revision of the EMU. According to the logic of path dependence, the obscurities in the TEFU become self-reproductive.

At present, there are several innovative mechanisms that mirror capital controls and are not explicitly prohibited in the TFEU. The restriction of current accounts is one example of a popular capital control policy not precluded by the TFEU. A current account restriction limits the amount of credit a country allows to enter its market. Implementing current account restrictions forces a government to maintain a balance of payments equal to zero. In the TFEU, there are no structural constraints against the implementation of current account restrictions. In using these restrictions, a government can assert itself financially dependent on a small capital account holdings and, as long as it does not conflict with the authority of the EU, it can use mechanisms prevent large inflows of credit. Current account restrictions are not the only innovative technique that states can use to exploit obscurities in the TFEU, they do demonstrate how states can use capital control techniques that are not necessarily precluded in the rules. Since states are rational egoists and current account restrictions are in their best interest, they are unlikely to amend the TFEU to preclude these types of regulations.

In sum, gaps in the rules against capital controls have become self-reinforcing due to positive feedback (Mahoney and Thelen 2010). This is because the costs associated with changing the rules are greater than the benefits derived from the status quo (Pierson 2004). Member states have found a variety of innovative methods of exploiting these gaps to prevent appreciation of their real exchange rates. States' abilities to use innovative mechanisms to exploit institutional gaps explains the variations in capital controls in the EU. Assuming that member states are wealth-maximizing, we can expect countries to use novel mechanisms to curb capital flows in order to curb exchange rate appreciation. Consequently, members who do not implement the same capital control mechanisms may experience appreciation. By this logic, several hypotheses can be made of capital control variation that explain export competitiveness.

Theory: Capital Controls as Foundation of Export Competitiveness in the EU

Competitiveness in European Monetary Union exports and imbalance of payments are linked to varied implementation of capital controls. Specifically, weak capital controls explain the imbalance of payments of EMU

members in the lead up to the 2010 European debt crisis. Countries who did not apply capital control mechanisms experienced a rapid expansion of credit, thereby reducing the competitiveness of their exports. Several hypotheses that explain this phenomenon are tested in the research design that follows. These hypotheses focus on the disparity in capital controls and its effect on competitiveness and currency appreciation. Key hypotheses will be tested against the null hypothesis that there capital controls have no effect on EMU competitiveness.

H0: Capital controls do not explain variation in EMU members' real exchange rates.

The hypotheses of this study operation under several key assumptions. First is that global financial actors are rational egoists that try to maximize revenue in the context of the international financial system. Second is that global financial actors are myopic and are driven primarily by the potential for short-term gains. Thus, it is assumed that financial actors strategize based on the immediate costs and gains of investing into a country. This is a particularly pertinent assumption considering the prevalence of credit booms and busts that occur when profitability in investment changes.

Since capital controls limit financial flows, they also control the appreciating effects of exchange rates that arise with increased production costs and rapid economic growth. Capital controls, however, prevent currency appreciation only when there is a perceived profitability in investment. Investors rarely bring money across borders when obvious risks are apparent. Thus, profitability has an interaction effect that conditions the impact of capital controls on competitiveness. When investors believe that a market will be profitable, they will invest money internationally. When there are inadequate controls on the movement of money in profitable markets, sudden inflows of capital are inevitable. Rapid growth in credit results in consumption spending, followed by the appreciation of a country's real exchange rate. From this, we can make the following hypothesis:

H1: When capital controls are weak and profitability is high, we should expect growth of a EMU member's exchange rate.

Alternatively, when profitability is low, we should not expect an influx of money from investors. Low profitability does not result in an expansion of credit and will not stimulate appreciation of currency.

H1a: When profitability is low we should not expect appreciation of EMU members' exchange rates.

Strong capital controls reduce the amount of capital investors can bring into a market and prevents credit booms. By regulating the inflow of capital, controls prevent the appreciation of a country's exchange rate. This leads to another hypothesis:

H2: When capital controls are strong and profitability is high, we should not expect a credit boom that will reduce the competitiveness of an exchange rate.

When capital controls are strong and investment profitability is low, two factors prevent the appreciation of exchange rates. Strong capital controls prevent rapid expansion of credit and the low profitability of markets prevents investors from wanting to bring capital into the market. However, in circumstances of low profitability and strong capital controls, the appreciation of a currency may still occur if domestic actors invest into central bank bonds. When there are no alternative sources of credit, people will buy their own currency to deposit in their the country's central bank. The process of seeking profits from the central bank's interest rates stimulates an increase in the exchange rate.

H2a: When capital controls are robust and profitability is low, we should not expect a credit boom that will lead to appreciation in a country's exchange rate. Appreciation of a currency, however, may still occur when domestic investors attempt to profit from their central bank's interest rates. As such, it is difficult to predict the correlation between investment profitability and currency appreciation in a country with strong capital controls. What one can conclude, however, is that appreciation of exchange rates in circumstances of strong capital controls and low profitability do not arise from rapid inflows of capital.

Based on these four hypotheses, the table below outlines the expectations of capital inflows that affect the exchange rate. The table also includes the interaction effect between capital controls and profitability.

Key: IV's on Exchange Rate	Strong Capital Controls	Weak Capital Controls
Low Profitability	Will Not Appreciate / May	Will Not Appreciate

	Appreciate	
High Profitability	Will Not Appreciate	Will Appreciate

Examining tests of the hypotheses outlined in this section, one may wonder what measures are used to determine capital controls. This is a relevant consideration given the plethora of policies a government can implement to restrict the flow of money in and out of markets. Testing all possible mechanisms of capital controls is warranted given the assumption that EU members will utilize gaps in the TFEU regulations against capital controls. Thus, this study is careful to identify an appropriate proxy for the capital control mechanisms at work. The analysis contends that as capital account openness increases, the existence of capital controls will diminish. In addition, it suggests that as capital flows increase the growth of currency is more likely to occur given profitability in a market.

Research Design

A future draft of this project will employ a multi-method research design that includes a formalized model of wage, productivity, and capital controls explaining exchange rates. Also, it will include an analytic narrative of EMU members' capital controls first stemming from obscurities in restrictions of the TFEU and then being implemented due to concerns for export competitiveness. The analytic narrative will illustrate how states exploit gaps in the European Union rules in order to implement capital controls. It will help guide the definition of the formalized model by specifying useful indicators and establishing data collection process for the regression equation. For now, this project will only cover the statistical analysis of capital controls affecting competitiveness.

A Statistical Model of Capital Controls and Competitiveness of EMU Member States

This project employs a cross-national, time series analysis from 1990 – 2011 for all European Monetary Union and non-member states who are major exporting markets. This research design has an N of ~283 observations with real effective exchange rate as the primary unit of analysis, this. The countries selected include

the 27 European Monetary Union countries plus America, China, Japan, Brazil, India, Mexico, Canada, and South Korea.

Notice: Before the variables of the research design are outlined, it should be made clear that this project is only interested on the effects of *inflows* of capital affecting exchange rates. The *Outflow* of capital certainly influences competitiveness of countries, such as massive divestment of equity from a market that will slow growth, but is not the point of interest in this paper. Credit expansions affecting exchange rates are related only to the openness of inflows of capital, not the restrictions of capital flows out of a market. Policies that restrict capital outflows is another issue area that may explain divergence in competitiveness between EMU member states, and may provide opportunities for future iterations of this project.

Dependent variable: The outcome of interest is the REER (real effective exchange rate) of the countries of interest. The REER is the weighted average of a country's currency relative to a basket of other leading currencies adjusted for the effects of inflation. Data on the REER was collected through Eurostat (2012). The weights are by comparing the relative trade balances, in terms of one country's currency, with each other country within the index. The REER is a powerful dependent variable to measure competitiveness since it is used to determine an individual country's currency value relative to the other key currencies. The REER measures the value that an individual consumer will pay for an imported good at the consumer level. This price will include any tariffs and transactions costs associated with importing the good. Moreover, the REER is a particularly a better measure of EMU competitiveness than the nominal exchange rate since the European exporters all share the same currency. The nominal exchange rate would not be able to capture and overvaluation or under valuation that comes from the effects of inflation. On the contrary, REER does capture the effects of inflation on exchange. All currencies within the index are the major currencies being traded today: U.S. dollar, Japanese yen, euro, etc.

Key Independent Variables: The first key variable of capital controls will be measured by the KAOPEN index on capital openness (Chinn-Ito 2012). The KAOPEN Index is a tabulation of binary dummy variables that codify the restrictions on external accounts. These variables include: 1) variable indicating the presence of flexible

exchange rates, 2) variable indicting restrictions on current account transactions, 3) variable indicating the requirement of the surrender of export proceeds. The KAOPEN Index tries to measure the strength of capital controls insofar as the intensity is correlated with the existence of other restrictions on international capital transactions. This conceptualization lends more theoretical and empirical specificity that distinguishes ancillary capital controls, such as legislation of quotas vs. unlegislated quotas, from substantive capital controls. Moreover, the scaled variable of capital openness provided in the KAOPEN index is a more effective as a measurement of capital controls than the alternative trying to assess each country's range of capital control mechanisms. This is a particularly useful variable for capturing the innovative mechanisms that states may use in order to exploit European Union rules on capital controls. This alternative approach would entail locating each tax, tariff, volume restriction, as well as market-based forces that can limit or expand that amount of capital that flows between banks across borders. Such an endeavor would be met with complications since there is certainly missing data on any one of these mechanisms of capital controls for 35 countries for all years since 1990.

The second key independent variable of profitability will be measured by the risk premium on lending (lending rate of capital minus a country's treasury bill rate) as a percentage (World Bank 2012). The risk premium rate on lending is the interest rate charged by banks on loans to the private sector customers minus the "risk free" Treasury bill interest rate at which short-term government securities are issued or traded in a market. This is an appropriate proxy indicator for mechanism of profitability since it scales according to the spread of both profitability and risk investments given the political and economic conditions of a country. It simply measures the spread of risk in investments minus profitability. In some countries, this spread may be negative, indicating that the market considers its best corporate clients to be lower risk than the government. In other countries, the spread will be positive, indicating that the market considers the country to be financially risky and unprofitable. The higher this variable, we are to predict less inflows of capital into a market.

Interaction Effect: The key hypotheses of this report are based on the interaction effect of risk and capital flows. As such, the project includes an interaction variable of capital openness multiplied by risk premium ($X_{openrisk} = X_{open} * X_{risk}$). This will predict that higher levels of capital openness (proxy for weak capital controls) interacting with low levels of risk (proxy for profitability) will trigger exchange rates to appreciate and make a nation's exports less competitive.

Other Predictors: The rest of the predictor variables are based on policies of labor wage and productivity as factors of competitiveness. Once again, this project is not trying to dispute the importance of wage and production policies as explanations of competitive but is trying to see if capital controls explain variations in competitiveness given these two other factors.

The predictor variables of wage policy include several categorical variables of labor policy that are from the Database on Institutional Characteristics of Trade Unions (ICTWSS). First, a categorical variable of wage bargaining in manufacturing is included. This variable tries to predict that capture laborers are better able to bargain over wages. The second variable is a categorical variable of how strong collective bargaining in public sectors is. By assuming that the strength of collective bargaining in the public sector is with the bargaining private sector, this variable indicates that higher collective bargaining results in increased benefits to workers. An increase in either of these variables would predict higher unit of labor costs, which then predict an increase of the real effective exchange rate. There is also a variable that measures the extent to which governments can intervene in the private sector wages. This is a scaled variable where lower values indicate a government's weak capacity of intervening in wages (and vice-versa). Intervention in wages has a useful policy tool in for governments to increase competitiveness in exports. When exports are uncompetitive due to high labor costs, the government will be able to set wages it thinks is appropriate for competitiveness in exports. There has been variation between European governments' abilities to intervene in wages throughout the European Union members. In fact, some scholars have attributed Germany's rapid recovery in exports after the 2008 financial crisis to its government's ability to reduce wages in both private and public sectors (Moravcskik 2012).

This project also includes a couple of proxies for policies that target labor productivity. The first labor productivity variable is the efficiency in manufacturing labor. This variable comes from the OECD statics database (when) and is based on the change in productivity of labor in manufacturing. Secondly, a variable of manufacturing labor as a percentage of total labor force is included. When there is a higher concentration of manufacturing as a percentage of total labor, there may be increased gains in productivity. The increase in either of these two measures predicts depreciation of the real exchange rate since efficiency will reduce production costs.

Controls: The research design also includes several factors that affect competitiveness beyond factors wages, productivity, and capital controls. Dummy variables indicating whether or not a state shares a border with an ocean or is north of the European Alps are included. Both of these geographic variables will affect a country's connection to the global supply chain and will influence competitiveness via transportation costs of exports. This study will control for GDP per capita (logged) and democracy (polity IV).

The analysis will employ an ordinary least squares regression. Where (without control variables):

$$Y_i (\text{REER}) = \beta_0 + \beta_1 (\text{Capital Openness}) + \beta_2 (\text{Risk}) + \beta_3 (\text{Risk} * \text{Capital Openness}) + \beta_4 (\text{Wage Bargaining}) + \beta_4 (\text{Collective Bargaining}) + \beta_5 (\text{Productivity}) + \beta_6 (\text{Intervention in Wages}) + \beta_7 (\text{Manufacturing \% of total labor}) + \beta_8 (\text{Productivity}) + \beta_9 (\text{Near Ocean}) + \beta_{10} (\text{North of European Mountains})$$

Extra Analysis: In attempt to use the above model as prediction of exports, there is an extra analysis of the same predictors in the REER regression on the total exports of the selected countries. Gathering of this data is still ongoing, but the project will attempt to conduct a test to see if the above model explains for Exports of the 35 countries. This project will also include a case study of Republic of Slovakia to see if the implementation of weak capital controls, when conditioned by high profitability, also results in decreased exports. The data for both global and Slovakia's exports was gathered thorough The UN Comtrade (United Nations 2012) online database. The global exports variable is combined index of exports from the above mentioned 35 countries from years 1990 –

2011. It should be noted that for countries that experienced a regime transition after 1990, their measures were only conducted from the years when their current government was formed.

Estimation and Results

Before starting any regression model, we should see whether or not there is a relationship between the two key independent variables and the dependent variable of real exchange rate. This project begins by creating four levels of real exchange rates (low, medium, high, very high) and conducts two different tabulations of risk on real exchange rate and capital openness on real exchange rate.

----Figure 1 Approximately Here----

The results of a test between three levels of risk and four levels of real exchange rates are included in Figure 1. Overall, the results provide some degree of support for the argument that levels of risk influence real exchange rates. The influence low and medium risk of investments seems to decrease when looking at their effects on extremely high real exchange rates. As risk increases the exchange rate diminishes over time. Considering how investors are less likely to pump capital into a market when there is not any profitability, this result is expected. What is intriguing, however, is how the prevalence of high exchange rates increases when we introduce higher values of risk. This trend of exchange rates first decreasing and then suddenly increasing indicates there might be an interaction effect at play. The other variable in the interaction effect might be capital openness. Before moving on to the interaction effect, let us look at the bi-variate relationship between capital openness and real exchange rates.

---Figure 2 Approximately Here---

The results of testing three levels of capital controls against four levels of real exchange rates are included in Figure 2. The results reveal that weak capital controls explain a significant portion of appreciation in exchange

rates. What is fascinating, however, is the fluctuation between low and medium levels of capital controls explaining the exchange rates. At first it seems as though high capital controls are accounting for lower exchange rates. This is illustrated by the proportion of exchange rates being influenced by high capital controls decreasing over time. If we look at the last column, however, higher capital controls end up accounting for higher exchange rates. This trend of variables first decreasing and then increasing the real exchange rate underpins the possibility of an interaction effect. Now that we are confident these two variables explain variance in relative exchange rates to some degree, we can move on to see if there is an interaction effect between risk and capital controls on real exchange rates.

---Figure 3 Approximately Here---

The results of the interaction between capital controls and risk in investment are included in Figure 3. The figure reveals that capital openness (inverse of capital controls) alone has a slightly positive effect on exchange rates: the higher the capital openness the higher the real exchange rate. The figure reveals that risk alone has also had a positive effect on exchange rate. Both of these variables seem to increase exchange rates. The interaction of risk in investment with capital openness has a slightly negative effect on exchange. This indicates that higher levels of risk, mixed with low levels of capital openness (proxy for strong capital controls), result in more competitive exchange rates. Before we can make any judgments on whether or not these findings hold up with the hypotheses of this project, we should consider the results of the regression model.

---Table 1 Approximately here---

The results of the regression model are included Table 1. Overall, the results provide some degree of support for my argument that profitability, capital controls, and the interaction of both influence competitiveness. Consider the results of the model without the interaction effect: while capital openness has a depreciating effect on exchange rates, it is not statistically significant. Further, risk has only a slight positive effect is also statistically insignificant. Some fascinating results emerge in the model with the interaction effect included. First off, we find

evidence for the argument that weak capital controls will result in decreased competitiveness when profitability is high. The capital control variable becomes significant and switches from negative to positive when controlling for the interaction effect. This implies when capital controls are weak (capital openness being high), and risk is low, we should actually see a decrease in competitiveness. Next, when controlling for the interaction of capital controls something unexpected occurs: the effect of risk actually becomes significant significantly positive. This implies that low profitability in investment does affect competitiveness when there are strong capital controls. This is not surprising since low profitability in investment and strong capital controls will prevent domestic actors from accessing international sources of credit. As an effect, domestic investors will be forced to buy the domestic currency in order to profit from a central bank's interest rate. This will appreciate a country's exchange rate.

Turning briefly to other variables in the model, several intriguing trends emerge. Three variables that capture wage policy and productivity are significant in both models. Labor productivity is negative and statistically significant, indicating that it decreases exchange rates due to lowered cost per unit of output. Collective bargaining is statistically significant and has a negative effect on real exchange rates. Interestingly this contrasts with my expectation that benefits to workers would increase labor costs and drive up exchange rates. A negative coefficient may be implying that reduced production costs are derived from increased benefits to the workers. For example, workers who are successful in bargaining for paid sick leave or medical insurance can show up to work more days out of the year. This would reduce the costs associated with hiring replacements for the sick worker and will increase the long run efficiency of a labor force. Manufacturing labor as a proportion of total labor force interestingly is significant and has a positive effect on exchange rate. The results show when proportion of total labor as manufacturing increases, competitiveness decreases. This is indicated by the rise in exchange rates. This trend is utterly different from the prediction that larger manufacturing sector would increase competitiveness by lowering production costs. This result shows that reduced efficiency is a result of manufacturing making up a large portion of the total workforce. It may be possible that productivity does not necessarily come from the size of manufacturing labor force. Instead efficiency may come from the concentration of the manufacturing labor force. Meaning that we may only find depreciative effects on exchange rates when

manufacturing is concentrated to a small set of firms. This is because a concentration of the manufacturing sector to a small set of firms will exhibit increased efficiency from a tightly connected supply chain. In fact, the largeness of a manufacturing labor force might be indicating for the inefficiency that occurs from having a loosely concentrated manufacturing sector. This is something to consider for the future iteration of this research design.

Regarding variance, the results reveal an adjusted R^2 of 11.3% in the first model and an R^2 of 16.7% in the model containing the interaction effect. The model is explaining more variance of real exchange rate when it includes the interaction effect of capital controls and profitability.

---Figure 4 Approximately Here---

The result of the relationship between the same predictors of REER on global exports is included in Figure 4. Interestingly, the figure reveals how the same interaction effect of capital openness and risk in investment also explains exports. Capital openness and low risk actually predicts decreased global exports. This provides some evidence to the core argument of this paper that weak capital controls lead to decreased competitiveness. High risk (low profitability) and strong capital controls (low capital openness) results in decreased exports. This is expected since risk will cause domestic actors to buy domestic currency causing the exchange rate to appreciate. The interaction effect of Capital Openness and Risk results in decreased growth of imports, indicating that countries will not buy from exporters when there is high risk in investments, regardless of how weak are capital controls.

---Figure 5 Approximately Here---

The results also include a test of one specific country's exports given the same predictors. Exports from the Republic of Slovakia from years 1993-2011 are included in figure 5. The results predict the same thing as figure 4. When conditioned with low levels of risk (high profitability), weak capital controls actually decreased the exports of Slovakia. Moreover, high levels of capital flows and high risk also decrease exports due to investors not wanting to bring money into an unprintable market.

Discussion and Conclusion

At the outset of this paper, this project considers whether or not there are policy areas that may affect foundations for an imbalance of payments in the European Monetary Union. To address this question, this project argues that weak capital controls mixed with high profitability of investment can result in an appreciated exchange rate and a reduction in export-driven revenue. The logic offered by this argument implies that when investors expect returns in investments and can easily move capital in and out of a country, it will flow capital into the market. As a result, credit booms will spark consumption spending and will appreciate a government's exchange rates. The lack of revenue from noncompetitive exports explains imbalance of payments since a government cannot pay for its own spending. To test this argument, this project develops a large-N test evaluating factors that cause exchange rates to appreciate. Using OLS regression model, the results show that when controlling for the interaction effect of capital controls and profitability, weak capital controls do result in uncompetitive exchange rate. Overall the results exhibit reasonably strong support for the project's argument. Also, the results of the analysis of capital controls and profitability on global exports and the Republic of Slovakia's exports give support to the central argument as well. The model explaining exports both globally and in the case of Slovakia is undoubtedly useful and presents an interesting opportunity to pursue case studies in an analytic narrative in the future iteration of this project.

This research has significant implications for scholarly and policy research. First this project updates several previous analyses of competitiveness in the European Monetary Union using diverse measures of wage and productivity policy. Several works explore the effects of both higher wages and efficiency on production costs, but specific government policies (including wage intervention, or wage bargaining) have yet to be systematically evaluated using Large-N, cross sectional time-series analyses. Moreover, this research posits capital controls as another issue area that might influence competitiveness of European Monetary members. Considering the political and economic turmoil that occurred in the wake of the 2010 European debt crisis, understand all of the factors that result in imbalances of payments is crucial to maintaining future solvency of member states. The research suggests that weak capital controls will actually decrease competitiveness when

investors want to bring in a large amount of capital into a country. One immediate policy implication given this is that the European Monetary Union needs to consider capital controls for countries that are at risk for currency speculation by global investors. Indeed, the momentum of capital control initiatives created and endorsed by the European Monetary Union in the past few days suggests this may be an appropriate consideration. Also, given the prominence of regional financial (particularly banking) regulation in the European Union, how states exploit gaps in institutional rules on banking rules is vital to future policy design. If actors are able to exploit rules in the TFEU for their own gain, there may be other institutional constraints that are being bypassed by members.

There are several avenues to improve and expand upon this project's analysis. First, the profitability variable used in this analysis, while a reasonable approximation of the concept is posited, may not be the most accurate. Future versions of this project will include market-based measures of risk that capture international financial investor's perceptions of financial profitability. Indeed, a broader range of risk variables can be evaluated based on the history of investments, currency speculation, or even basic financial trend analysis. Second, more careful ways of evaluating the causal mechanism, capital controls and exploitation of institutional rules, can be developed. Capital controls may be evaluated using various measures of tariffs, quotas, and market-based mechanisms that are combined in the KAOPEN index I employ in this project. An analytic narrative will guide a historical institutionalist approach to understanding how states exploit gaps in the European Monetary Union to implement capital controls. Moreover, this will help define the specification of future regression models as to what type of indicator should be employed for capital controls.

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Figures and Tables

Figure 1: Bivariate relationship between Profitability (indicated by risk) and Exchange Rate

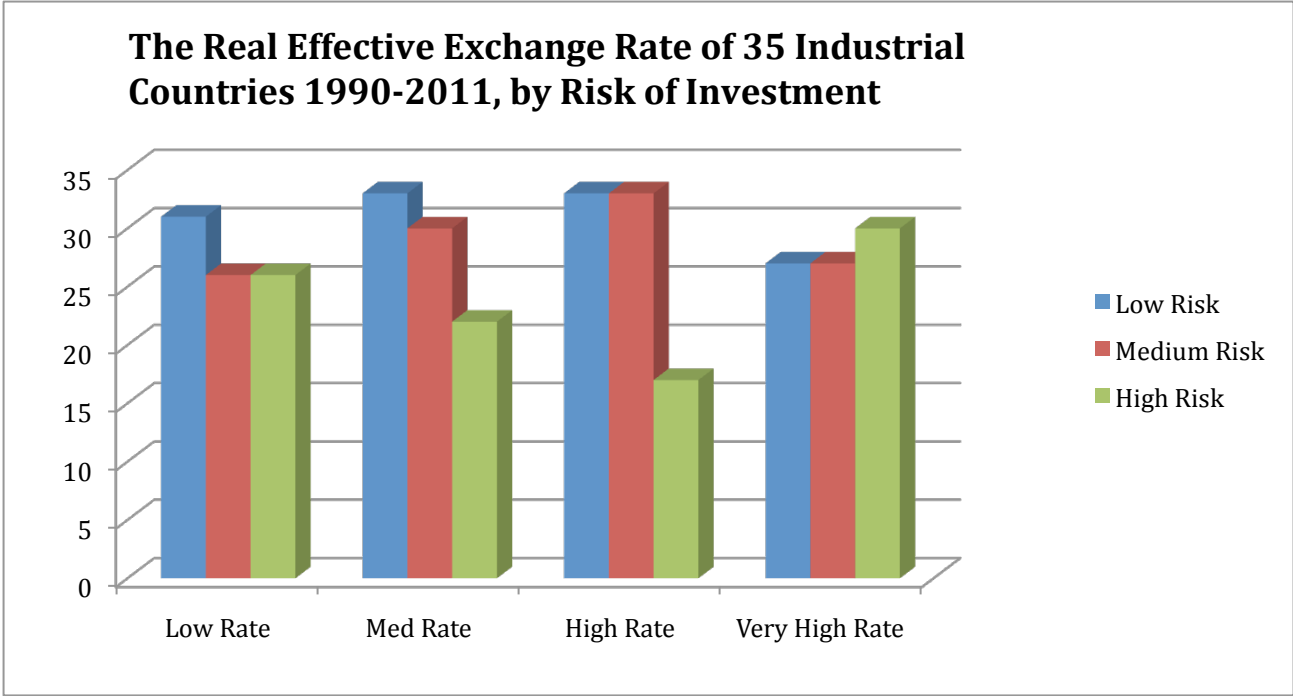


Figure 2: Bivariate relationship between Capital Openness and Exchange Rate

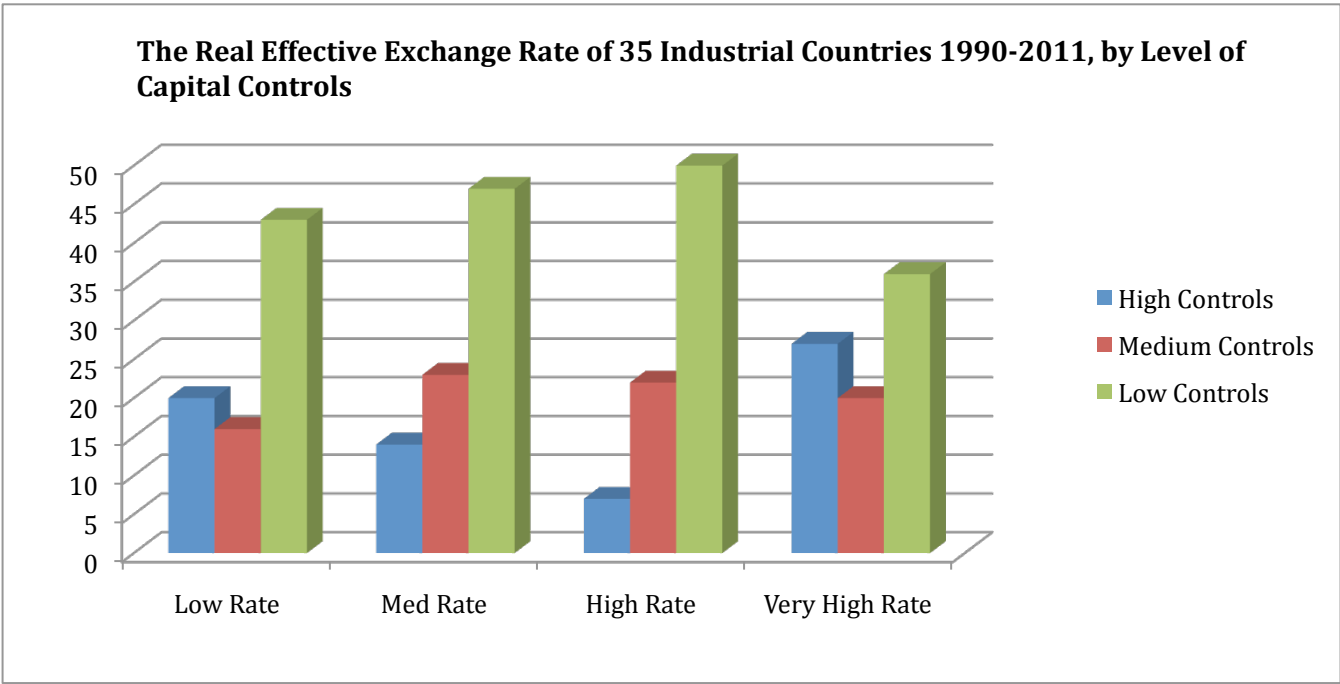


Figure 3: Predictions of Exchange Rate and Interaction Effect of Capital Openness with Risk

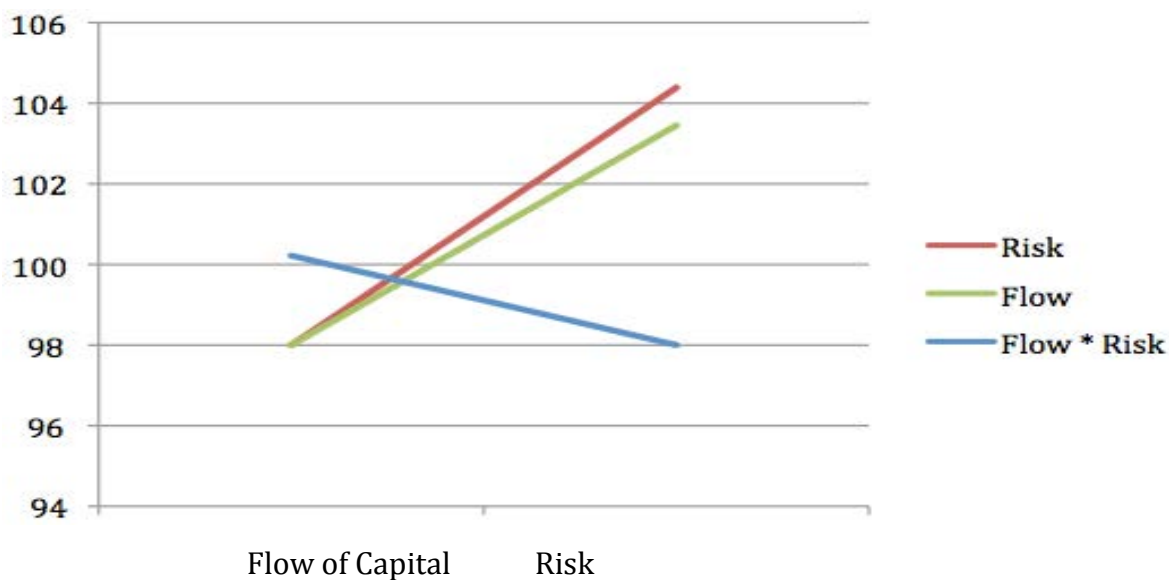


Table 1: Predictors of Real Exchange Rate

	(1) Exchange Rate	(2) Exchange Rate
Capital Openness	-1.288 (0.505)	1.654* (0.916)
Risk of Investment	0.00173 (0.336)	1.458** (0.468)
Log GDP	0.000199* (0.0000892)	0.000247** (0.0000871)
North Europe	-0.650 (1.318)	0.380 (1.299)
Ocean	0.690 (1.679)	-0.194 (1.639)
Collective Bargaining	-2.442** (0.793)	-3.074*** (0.782)
Wage Bargaining	-1.045 (0.597)	-1.096 (0.579)
Democracy	0.0180	0.0479

	(0.223)	(0.216)
Wage Intervention	-0.0207 (0.832)	0.0814 (0.807)
Productivity	-0.304 ^{***} (0.0821)	-0.270 ^{***} (0.0799)
Manufacturing as Labor %	34.32 [*] (15.99)	38.05 [*] (15.52)
Capital Open * Risk		-0.929 ^{***} (0.215)
Constant	131.1 ^{***} (8.951)	122.0 ^{***} (8.924)
Observations	283	283
Adjusted R^2	0.113	0.167

Figure 4: Total Exports Explained by Capital Openness, Profitability, and the Interaction Effect

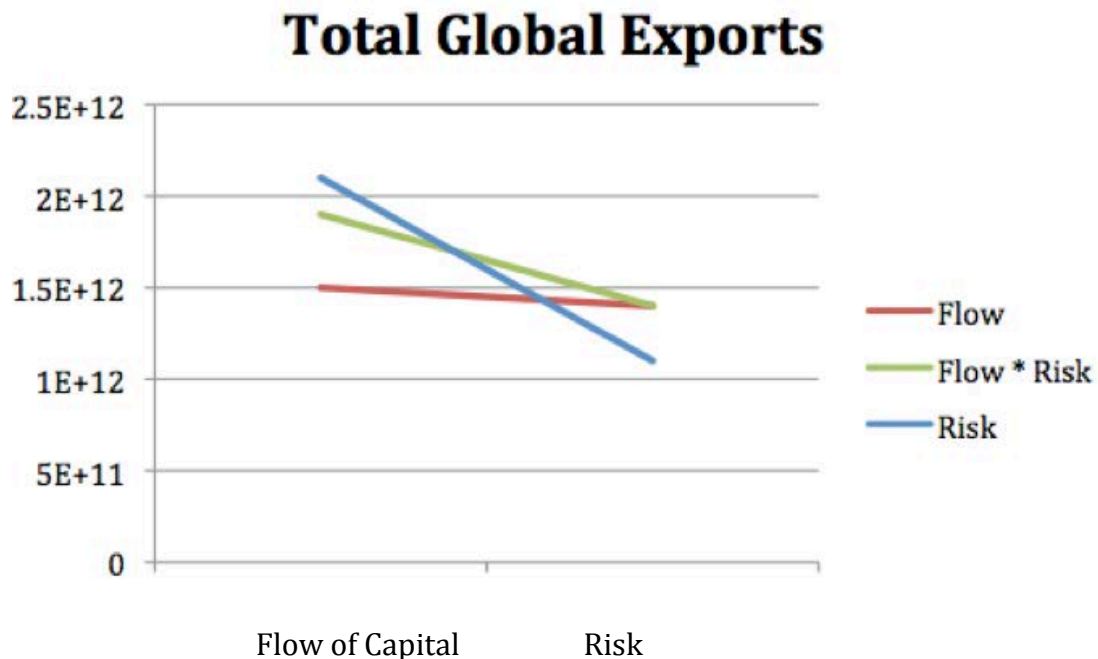
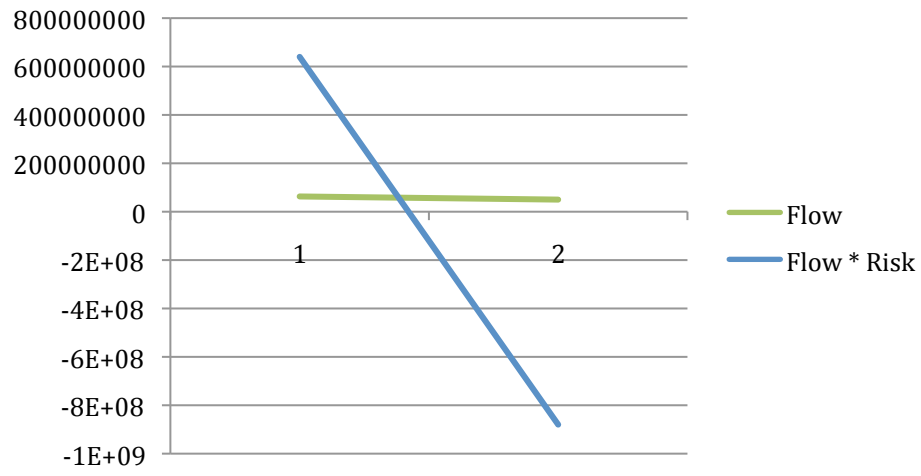


Figure 4: Exports from the Republic of Slovakia Explained by Capital Openness, Profitability, and the Interaction Effect

Exports from Republic of Slovakia



Flow of Capital

Risk