Legal origins and their influence on cross-border M&A volume across Europe

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Abstract

This paper empirically examines the influence of legal origins on the cross-border European M&A market. Using a sample of 27 European countries with a random effects model, the empirical evidence does not confirm legal origins as an explanation for the volume of European cross-border M&A market, neither does it confirm a significant reduced effect of this influence by becoming a member of the EU. The results are robust for re-estimating the dependent variable by using the value of a cross-border M&A deal, instead of the volume.

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I. Introduction

Many economic differences among countries are often taken for granted. We usually do not expect topics like governance structure or stock market development to be determined by old underlying causes such as the origin of the legal system or institutional differences (Andersson et al., 2014; Armour et al., 2009). However, according to a legal view, differences in economic aspects between countries are partial the consequences of differences in legal origins. One of the first papers contributing to this topic is written by La Porta et al. (1997), in which the authors examine the influence of legal origins on external finance, and in particular the influence on investors' protection. Subsequently, and rapidly, many different economic aspects influenced by institutional economics were then examined, and often economic aspects were explained by means of the legal origins view.

Contemporary, the legal origins view is examined tremendously and has found its way into finance literature. Whereas Demirguc-Kunt & Maksimovic (1998, 1999) found that legal origins have an influence on the access to external finance and growth, Johnson et al., (2002) found an influence of legal origins on financial fragility. Besides, Levine (1997; 1998) traced the effect of legal origin on financial development through to long-run economic growth, thereby suggesting that legal origin influences economic growth by shaping national financial systems.

An example of how legal origins can influence a country's economic growth, is by its influence on merger and acquisitions (M&As) laws. In all countries, governments develop M&A laws in order to maintain a proper and competitive environment for improving business performance (Ciobanu, 2015; Lin et al., 2011). However, a country's laws are heavily influenced by its legal origin and are typically transplanted either voluntarily or otherwise from a legal family or tradition, hence M&A laws are no exception (Glaeser & Shleifer, 2002; Watson, 1974).

In the previous three decades, European takeover activity as the total number of deals has increased with both cross-border European M&As and out-European M&As (Martynova & Renneboog, 2006). In addition, recent studies show that the cross-border European M&A market have grown considerably in the previous decade, which raises the question why there has been a larger increase in cross-border European M&As than there has been in out-European M&As (Ferreia et al., 2014; Mallikarjunappa & Nayak, 2007). A possible explanation for the increase in cross-border European M&As in contrast to out-European

M&As is that countries within the same geographical area experiences more cross-border M&A deals (Rossi & Volpin, 2004). Firms also tend to invest more in countries with whom they trade more often and with whom they share a common language (di Giovanni, 2005). Furthermore, the chances of experiencing a cross-border M&A deal is increased by better investor and shareholder protection due to a well-functioning legal system (La Porta et al., 2000). Hence, differences in legal systems may cause differences in experiencing cross-border M&A volume across countries.

In Europe, countries are scattered by two major legal families who dominate, which are civil law and common law. Common law is often referred to as English common law, whereas civil law can be divided into three subcategories. The first subcategory is the most well-known, namely French civil law. The other two categories are German civil law and Scandinavian civil law. Hence, these four legal families lay a foundation for laws, which has further spread to all countries in Europe. Because each of these four legal families has their own characteristics, it may have a different impact or influence on a country's laws, and in particular M&A laws. For example, when compared to all three civil law families, common law countries protect both shareholders and creditors the most and are more associated with a more business friendly environment (La Porta et al., 1997; Ciobanu, 2015).

Despite the increased attention to the legal origins view, there is no systematic knowledge of whether different countries actually do have substantial differences in laws that might explain differences in the volume of cross-border M&As among European countries (La Porta et al., 1998). This essay contributes to existing literature by providing insights on the effects of legal origins on the volume of cross-border European M&As. Focusing solely on Europe as a research area instead of focusing on multiple countries worldwide is more interesting because each legal family is spread and represented among all European countries. In addition, this essay differs from prior research by taking into account European M&A laws, which becomes relevant from the moment that a country becomes a member of the European Union (EU). Because each country must comply with European M&A laws, they may lessen the effect of legal origins due to equalizing differences among country's specific laws.

In order to examine the influence of legal origins on differences in cross-border European M&A volume, European countries are assigned to each of the four legal families. To this end, a data set is assembled, covering all cross-border European M&A deals announced and completed in the period from 1999 to 2016, covering 27 countries. Using a random effects

model it is analyzed if legal origins has an influence on the volume of cross-border European M&A deals and if this influence is weakened when a country becomes a member of the EU.

The main result is that the empirical evidence does not confirm legal origins as a determinant for the volume of European cross-border M&A market. In contrast to other studies, no evidence is found to confirm that English common law countries experience the highest volume of cross-border M&A deals, followed by Scandinavian and German civil law countries, and finally French civil law countries. Furthermore, no evidence is found to confirm a significant reduced effect of the legal origins influence on the volume of European cross-border M&A market when a country becomes a member of the EU. These facts are robust for re-estimating the model with the value of cross-border European M&A deals as dependent variable.

The remainder of this paper is organized as follows. In the next section the literature review is discussed and hypotheses are formed. Chapter three continues with the description of the research method. The results and analysis are presented in chapter four. Chapter five contains the discussion, in which both limitations are appointed and recommendations for future research are presented. Finally, chapter six concludes the study by answering the research question and providing a conclusion.

II. Literature review

This section describes the theories and approaches which are relevant in order to understand the possible relation between legal origins and M&As volume.

Cross-border M&As

Cross-border M&As can be defined as deals between foreign firms and domestic firms in a target country. In the previous two decades, cross-border M&As have increased partly as a result of technological development and globalization (Coeurdacier et al., 2009). Furthermore, developed countries, and in particular the developed countries of the European Union and the Unites States, account as the largest acquirer and target countries of M&A deals (Coeurdacier et al., 2009). Yet the determinants underlying cross-border M&As are dependent on both a specific context and differences among acquirers, resulting in differences in importance of specific determinants each merger or acquisition. Hence, each cross-border M&A is unique and it is impossible to completely generalize them, however, there are some regularly determinants of certain importance, which are discussed below.

The decision to enter a cross-border M&A involves both the decision to do a deal with a non-domestic partner and the choice of a mode (Boeh & Beamish, 2007). Hence, when a firm is considering a cross-border M&A, it should take into account its own strategic needs and the constraints and opportunities posed by any mode-country choice. There are several considerations that should be taken into account by a firm who wants to enter a cross-border M&A (Boeh & Beamish, 2007)

The first consideration a firm should take into account is the selection of country and partner. From a strategic point of view, a firm must choose from among the countries in the world where it wishes to do business (Boeh & Beamish, 2007). For example, a firm may choose to do business in a specific country because of lower production costs, opening new target growth markets, or ownership restrictions. It is possible that a firm first looks at a specific country in which it wants to operate and then select a set of potential partners. However, it is usually not likely to happen that a firm first choose a country and subsequently a partner because it is more common that a firm select a partner first based on its criteria (Boeh & Beamish, 2007).

A second consideration a firm should make are specific country restrictions. Certain countries place restrictions on the foreign ownership of domestic firms, assets, and real property (Boeh & Beamisch, 2007). In addition, La Porta et al., (2000); Boeh & Beamish (2007) argue that due to the different legal systems across countries there are differences in property rights protection which may lead to greater risk that foreign courts or governments may appropriate firms assets. Hence, it is not always possible to approach potential best candidates due to specific country restrictions.

Besides, a firm should also consider a specific country's rules which include the business rules and taxation risks and opportunities. Acquirers are more likely to be from countries with higher corporate income taxes than the country in which targets are located (Erel et al., 2012). In addition, cross-border M&As enables acquiring companies to exploit national differences in tax systems, thereby capturing rents resulting from market inefficiencies (Rossi & Volpin, 2004; Erel et al., 2012; Scholes & Wolfson, 1990; and Servaes & Zenner, 1994). Hence, specific country rules play an important role in the choice whether to merge or ally or not at all because it can make it either more easier or more difficult to merge or ally in a specific country.

A final consideration a firm should ponder are both differences or similarities between countries and firms' cultures (Boeh & Beamish, 2007). When there is an intention to integrate both firms at some level, it is necessary to consider both the two countries' culture and firm culture in order to run the M&A deal smoothly. Erel et al., (2012) argue that cross-border M&As are more likely to occur when two firms share a common cultural background because cultural differences can increase the costs of combining two firms. If people in different countries speak different languages, have different religions or may have longstanding feuds, it will increase contracting costs associated with combining two firms across borders (Erel et al., 2012). In addition, Rossi & Volpin (2004) argue that if there are cultural differences, deals initiated by foreign bidders are more likely to be hostile. Whereas cultural differences among countries is mostly anticipated by firms, cultural differences across firms is anticipated to a lesser extent because they themselves may differ from country norms (Boeh & Beamish, 2007).

Legal origins view

As mentioned previously, there are several determinants which may explain cross-border M&A volume. In addition, another possible determinant is legal origin (Rossi & Volpin, 2004). In order to understand which effect each different legal origin may have on cross-border M&As volume in Europe, it is necessary to have an understanding about the differences among each of the four legal origins. Hence, an extensive overview will be provided here.

The legal origins view state that the influence of legal origins on laws and regulations is enormous (La Porta et al., 2008). However, legal origins are not just a set of rules of law about contracts, corporations, and crimes, but it is instead a set of deeply rooted and historically conditioned attitude about the nature of law, about the role of law in the society and the polity, about the proper organization and operation of a legal system, and about the way law is or should be made and applied (Tetley, 1999).

Legal origins stresses that differences in legal traditions were formed centuries ago in Europe and were spread via conquest, colonization and imitation around the world (Levine, 2005). In addition, as Watson (1974) state, laws are typically transplanted either voluntarily or otherwise from a legal family or tradition. This together has resulted in two worldwide main streams of legal families which dominate in all countries, namely common law and civil law. By means of grouping laws into a limited number of family types, it simplifies its presentation and facilitates an understanding of difference among laws (Tetley, 1999). The two highly influential and dominating legal families, civil law and common law, are also scattered among European countries (Merryman & Pérez-Perdomo, 2007). In Europe both United Kingdom and Ireland have laws that are rooted from common law. However, due to previous colonization, common law has spread to former British colonies with the United States being the best known. On the other hand, civil law encompasses the rest of Europe, and is actually a combination of three different types of civil law: French civil law, Scandinavian civil law and German civil law. Since each of these four legal families has their own characteristics, it is reasonable to suggest that they also have a different impact with respect to national laws, and especially on laws regarding financial development (Beck et al., 2003).

In order to understand why legal families differ and their different impact on national laws, it is necessary to give concise historical background information about the origin and development of legal families below.

English common law has developed voluntarily because both aristocrats and merchants wanted a system of law that would provide strong protections for property and contract rights in the tumultuous 16th and 17th centuries, in which Parliament and English kings (further referred to as Crowns) battled for control of the country (Mahoney, 2001). Besides, aristocrats and merchants also wanted to limit the power of the Crown in order to reduce the Crown's interventions in the market (Mahoney, 2001). Eventually, this resulted into courts asserting that law is king instead of the Crown himself, hence limiting the power of the Crown (Beck et al., 2003). Nowadays countries following a common law system do not always face a written constitution or any codified laws, but do experience binding judicial decisions and extensive freedom of contract. In general, everything can be seen as permitted if it is not expressly prohibited by law (World Bank, 2016). Furthermore, Hayek (1960) state that common law is associated with fewer government restrictions on economic and other liberties. In brief, English common law is seen as a source of liberty and a champion of private property rights compared to other legal families (Beck et al., 2003).

According to Levine (2005), from the 1400s the French legal system consisted of many regional mixtures of customary law, Justinian's legal texts, and judicial decisions. However, in the 18th century French civil law has been implemented voluntarily as well (Mahoney, 2001). In that time the French revolution ought to eliminate the role of the judge and courts in making and interpreting the law in order to create a strong legislature and to limit judicial independence (Beck et al., 2003; Levine, 2005). Hence, Napoleon's codification did so by unifying several regional legal systems in France and placed the state above the court (Levine, 2005). Therefore, the state became the only source and interpreter of the law which minimized the independent role of the court. Eventually, Napoleon created a legal system in which the state was empowered solely (Levine, 2005). As a result, national legal systems which descend from French civil law are less flexible than Common law and German and Scandinavian civil law countries (Beck et al., 2003).

On the other hand, Germany rejected the French deviation and German's civil law system can be seen more as a result of evolution rather than revolution (Beck et al., 2003; Graff, 2008). In 1873, Bismarck decided – just like Napoleon – to codify and unify several German private laws which caused the emergence of German civil law around the 1900s (Beck et al., 2003). Synchronous with France, the codifying and unifying of laws led to a consolidated and a more strengthened state, which caused a sharp separation of powers in their systems of law and government (Levine, 2005; Merryman & Pérez-Perdomo, 2007).

However, according to Levine (2005), the biggest difference among France and Germany's civil law is that German civil law did not adopt the same degree of enmity towards judges and courts as France did. Besides, the German civil law was thought to be more like a tool to be used primarily by professionals of the law (Merryman & Pérez-Perdomo, 2007).

On the other hand, Scandinavian civil law is not widely distributed across countries around the world and the main reason for this is that Scandinavian countries did not have any colonies in the past (Constantinides et al., 2013; La Porta et al., 2008). While in 1380 Denmark and Norway were unified under a common king, both retained their own separated laws and during the reign of Christian V a comprehensive work of codification was accomplished (Bernitz, 2007). Meanwhile in Sweden, there was an increasing need for more modern recorded legislation and hence a new code has been drafted which was established in 1734 (Bernitz, 2007). Just like Germany, Scandinavian countries rejected the legal tradition which was implemented during the French Revolution (Graff, 2008). In addition, with regard to French civil law, Scandinavian civil law embraces jurisprudence and emphasizes a strong independent judiciary (Zweiger & Kotz, 1998; Levine 2005).

Although all legal systems have the same purpose of regulating and harmonizing human activity within their society, former research has revealed significant differences between English common law and (mainly French) civil law countries in various aspects, such as political and economic conditions (Dainow, 1966; Glaeser & Shleifer, 2002). The civil law system is a codified system of laws in which there is little scope for jurisprudence law in civil, criminal and commercial courts. However, in practice judges tend to follow previous judicial decisions (World Bank, 2016). In general, a civil law system is more prescriptive than a common law system, which ensures that there is more limited freedom of contract in civil law systems than in common law systems because there is need for a liberal interpretation when a new situation arise (World Bank, 2016; Dainow, 1966). In addition, civil law system is highly systematized and structured due to its prescriptive characteristics and relies on broad, general principles (Tetley, 1999). On the other hand, English common law is much more detailed and is said to be the foundation of private law (Tetley, 1999). In addition, if something is not prohibited by law, it is in principle permitted (World Bank, 2016).

These differences among legal families leads to differences in political and economic conditions (Glaeser & Shleifer, 2002). As Glaeser & Shleifer (2002) further argue, common law countries are more financially developed than civil law countries. In addition, common law countries protect both shareholders and creditors the most compared to all three civil law

families and is more associated with a business friendly environment, e.g. fewer days required to start a business or lower tax payments and greater judicial procedures (La Porta et al., 1997; Ciobanu, 2015; La Porta et al., 2008). On the other hand, civil law countries have the weakest legal shareholder and creditor protection (La Porta et al., 2000) and face less judicial procedures (La Porta et al., 2008). Hence, due to better shareholder and creditor protection, and a more friendly business environment and greater judicial procedures, it is expected that English common law countries face more cross-border M&A deals in their countries than (all) civil law countries do.

However, among the three civil law systems there are also differences. German civil law countries protect shareholders and creditors better than French civil law countries, whereas Scandinavian civil law countries score slightly lower on average creditor and shareholder rights than German civil law countries, but do score higher than French civil law countries (La Porta et al., 2008; Djankov et al., 2003). For comparison, English common law countries score better on creditor right protection and shareholder protection than all civil law countries do (La Porta et al., 1998). If creditors right and shareholder rights are extensive and well enforced by regulators or courts, investors are willing to finance more in firms (La Porta et al., 1999). Besides, law enforcement is another explanation why firms raise more funds in some countries than in others (La Porta et al., 1999). On average, Scandinavian civil law countries are clearly on top, followed closely by German civil law countries with regard to law enforcement (Ciobanu, 2015; La Porta et al., 1998). French civil law countries have the weakest law enforcement and English common law countries are located between French and near German civil law countries (La Porta et al., 1998). Both law enforcement and the protection of creditor rights have to do with removing uncertainty in the business environment, resulting in a more transparent environment for both acquirers and targets.

Many others find that Scandinavian civil law and German civil law score quite similar both being in the middle most of the time with regard to shareholder and creditor rights, investor protection and ownership concentration (La Porta et al., 2008; La Porta et al., 1998; Klapper & Love, 2004; Leuz et al., 2003). Hence, given the alternating results with regard to Scandinavian civil law and German civil law being ranked in the middle most of the time, it is expected that they both face more cross-border M&A deals in their countries than French civil law countries, but face less M&A deals in their countries than English common law countries do.

Legal origins shape financial markets and therefore influence the patterns of cross-border finance (La Porta et al., 2000). Creditors and shareholders rights are important conditions for investors to finance more in firms and those rights are best protected in common law countries, followed by alternately Scandinavian civil law and German civil law countries, and French civil countries protect creditors and shareholders the worst (La Porta et al., 1999). Furthermore, it is argued that legal origin is a broad indicator of investor protection (Rossi & Volpin, 2004; La Porta et al., 1998). Therefore, it is expected that common law countries experience a higher volume of cross-border M&A deals in their countries than in all civil law countries, followed by interchangeably German civil law and Scandinavian civil law countries, and French civil law countries as least. Hence, the following hypotheses are tested:

- *Hypothesis 1a: Common law countries experience a higher volume of cross-border M&As deals in their countries than (all) civil law countries.*
- *Hypothesis 1b: French civil law countries experience a lower volume of cross-border M&As deals in their countries than common law countries and both Scandinavian and German civil law.*
- *Hypothesis 1c: Scandinavian law countries experience a higher volume of cross-border M&A deals in their countries than French civil law countries, experience approximately the same volume of cross-border M&A deals as German civil law countries, but experience a lower volume of cross-border M&A deals in their countries than Common law countries.*
- *Hypothesis 1d: German civil law countries experience a higher volume of cross-border M&A deals in their countries than French civil law countries, experience approximately the same volume of cross-border M&A deals as Scandinavian civil law countries, but experience a lower volume of cross-border M&A deals in their countries than Common law countries.*

European M&A legislation

National regulators structure the regulatory policy on M&A transactions in the European Union but their regulatory policy has to conform to European rules (Dutcik, 2017). Besides national regulation, there is also an European Union Community Law governing the M&A market which is called ‘European Community Merger Regulation Law’, which is further referred to as ECMRL law (Ciobanu, 2015). This policy has economic integration of all member nations as dominant objective (Fox, 1997). The ECMRL law regulates whether firms are allowed to merge and under what kind of conditions. However, as Lin et al. (2011) state, governments have developed their own M&A laws in order to improve a country’s business environment, and boost their economies. As a result, some self-interested EU member states were hesitant to relinquish their power to control mergers and it took a very long period to

sign the Merger Regulation law by some member states (Korah, 2007; Lee, 2003). Especially in each of the three largest EU member states, Germany, the United Kingdom, and France, contradictory demands from competing domestic interest groups made it impossible to come up with a coherent vision of what European M&A control should be (Schwartz, 1993). These countries were afraid that implementing the Merger Regulation law would reduce the inflow of M&A activities in their countries due to stricter legislation and supervision (Schwartz, 1993). Hence, these countries may have encouraged firms to accelerate M&As deals in their countries, resulting in a higher M&A volume in the years right before signing the Merger Regulation law.

The formation of the EU has facilitated cross-border M&As due to the creation of a single market and the launch of the Euro (Bjorvatn, 2004). On the other hand, because some countries in Europe are part of the European Union while others are not, not every country is affected by European Laws. This can cause non-EU member states to implement laws and reforms for a more favorable business environment than EU member states, such as tax system reforms, and labor market reforms (OSCE, 2006). Furthermore, there are European laws which attempt to equalize differences among laws in countries, thereby reducing some specific country's competitive advantages. An example of this attempted equalization are the European M&A laws. On the other hand, there are also European laws which equalize differences among laws in countries and thereby increasing competitive advantages. For example, there are laws to prevent the concentration of economic power in the hands of just a few parties which benefits the free market mechanism. In general, it is expected that the effect of legal origins on the volume of cross-border M&A deals is weaker among member countries of the European Union, due to the attempted equalization of European laws which outperforms the competitive business-advantage derived from differences in laws due to different legal origins across countries (Ciobanu, 2015). This results in the following hypothesis:

Hypothesis 2: The effect of legal origins on the volume of cross-border M&A deals is weaker if a country becomes a member of the European Union.

III. Research methodology

This section describes the research method which is used in order to test the hypotheses and to provide an answer to the research question. First, the data sample is described followed with an overview of the variables of interest. Next, the regression model is established and explained.

Data sample and description

This study analyses 27 European countries covering the period 1999-2016. On January 1999, the euro was introduced as an European accounting currency which served as one of the first attempts to create a coherent European Union. Therefore, the year 1999 has been chosen as starting point for the data collection. The year 2016 is the latest year of financial data available on Thomson One. Next, in the following paragraphs, the dependent, independent, and control variables are discussed and operationalized.

Dependent variable

This study examines the influence of legal origins on the cross-border European M&A market volume. In order to quantify the cross-border European M&A market volume, the percentage of domestic traded companies targeted in completed deals is used, which is in line with Rossi & Volpin (2004). Data about all completed cross-border M&A deals in Europe for listed firms covering the period 1999-2016 is retrieved by using the Thomson One database. The requirements that are imposed on the dataset are the following: (i) all acquirers and target companies are listed, (ii) all acquirers and targets are European countries, (iii) the value of the deal is in U.S. dollars, (iv) there is at least a 5% ownership change after the deal is completed, (v) the acquirer owns on forehand less than 100% of the targets' shares, (vi) the deal must be completed, (vii) deals with incomplete information are excluded, and (viii) completed deals should be cross-border. After imposing the requirements mentioned above, a total of 830 cross-border M&A deals remains for 27 European countries.

The availability of cross-border M&A deals limits the original sample set from 32 to 29 European countries because Bosnia and Herzegovina, Cyprus and Luxembourg did not experience a cross-border M&A deal in 1999-2016. In addition, Latvia and Estonia have a high influence of socialist law on their legal systems, making it difficult to simply classify them in another legal origin category. Hence, following La Porta et al., (2000), Latvia and Estonia are not considered in this study and in this study 27 European countries which became

at least once a target in 830 cross-border M&A cover the period 1999-2016 is examined. For the remaining countries there is no missing data and hence all countries and deals are taken into account to test the hypotheses.

Independent variables

In order to examine the effect of different legal origins on the volume of European cross-border M&A deals, European countries must be classified according to their legal origin. This study focus on the four different legal origins, namely: English common law, French civil law, German civil law, and Scandinavian civil law. Each European country is assigned to a legal origin following the classification of Reynold & Flores (1989), resulting in a dummy variable which equals one for a specific legal origin and zero otherwise. Furthermore, in order to compare the effects of the four legal origins, one of the origins is assigned as reference category. Because the first hypothesis predicts that common law countries face more cross-border M&A deals than all other civil law countries, common law origin is chosen as reference category.

The second hypothesis assumes that if a country becomes a member of the European Union, the effect of legal origins on the volume of European cross-border M&A market is weakened. Hence, another dummy is included and equals one if a country is member of the European Union in a particular year, and zero otherwise. European Union membership data is derived from the Central Intelligence Agency (2001), which gives a comprehensive overview of all European countries.

Citizenship of the European Union was established by the Maastricht Treaty in 1991 (Cini, 2016). Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and the United Kingdom (UK) are since its establishment members of the European Union (Dinan & Wolinetz, 2005). Currently, there are 28 member states of the European Union including the 12 countries mentioned above plus Bulgaria, Cyprus, Estonia, Finland, Hungary, Croatia, Latvia, Lithuania, Malta, Austria, Poland, Romania, Slovenia, Slovakia, Czech Republic, and Sweden. The Czech Republic, Hungary, Poland, Lithuania, Slovak Republic, and Slovenia became members of the EU in 2004. The year 2007 welcomed Romania and Bulgaria as EU members, and in 2013 Croatia joined the EU. However, in 2016 a referendum had been held in the United Kingdom to

decide if the UK should leave or stay in the European Union, and the majority has chosen to leave the European Union in the near future (Hunt & Wheeler, 2017).

Control variables

The control variables are not explicitly part of this research, but they are considered to have an influence on the volume of cross-border M&As, which is not captured within the legal origins. The country control variables which are expected to have an influence on cross-border European M&A volume are: (i) geographical distance, (ii) bilateral trade among countries, (iii) expenditure on education as percentage of GDP, (iv) expenditure on R&D as percentage of GDP, (v) the time required to start a business, (vi) ease of doing business index, (vii) the average difference in corporate income tax rate, and (viii) a log function of GDP measured in current U.S. dollar. Appendix B shows specific information about all variables and their descriptions and sources.

Because acquiring companies seem to exploit national differences in tax systems, they target more often a low corporate income tax country than a high corporate income tax country (Rossi & Volpin, 2004; Scholes & Wolfson, 1990). Hence, the higher the difference between a country's pair corporate income tax rate, the higher the expected cross-border M&A volume will be. To be included as a control variable, the average difference between an acquirer and target firms' corporate tax rate is derived. KPMG (2018) presents corporate tax rates of each country in this sample, hence the differences among European countries' corporate income tax rates is calculated and derived from their dataset.

Next, some cross-border M&As can result in knowledge-and talent gains when a company takes over another and may be a motive to enter a cross-border M&A deal (Changqi & Ningling, 2010). Therefore, expenditure on education as percentage of GDP and expenditure on R&D as percentage of GDP are both entered as control variables. If a country spends more on R&D and this amount does not go entirely to wage increases of researchers and developers, a country's R&D competitive level can improve drastically and may be a potential take-over target (Goolsbee, 1998). Hence, a higher R&D expenditure may lead to a higher amount of cross-border M&A deals in a particular country. Besides, in order to gain a competitive and attractive business environment, governments tend to increase their expenditure on education to retain specific know-how in their country (Weatherly & Lipsky, 1977). If a company abroad does not have this specific knowledge but wants access to it, a

cross-border M&A deal is likely to happen. Both variables are retrieved from World Bank Indicators (2017).

In addition, if countries share a religious background it is expected that less transactions costs have to be made to enter a cross-border M&A deal, resulting in a higher cross-border M&A volume (Rossi & Volpin, 2004; Erel et al., 2012). In order to measure shared religion, data is retrieved from the Central Intelligence Agency (2001). A dummy variable is included and equals one if a country's pair have a shared religion and zero otherwise.

Distance between countries is also an important factor to predict the chances of a cross-border M&A. The shorter the distance between two countries, the more likely it is to observe a cross-border M&A to occur (Erel et al., 2012). For example, if two countries are both located in Northern Europe, the odds of a cross-border M&A are greater for the Northern European countries than two countries which are respectively located in Southern Europe and Northern Europe. To capture distance between countries, European countries are classified using the following geographical locations: (i) Northern Europe, (ii) Southern Europe, (iii) West Europe, and (iv) Eastern Europe. This classification is derived from the Central Intelligence Agency (2001) and a dummy represents a specific geographical location if it equals one, and zero otherwise.

The easier it is to do business in a county, the more often a cross-border M&A deal is likely to happen in that particular country compared to others. Hence, it is expected that there is a higher volume of cross-border M&A deals in a country, the easier it is to do business. This effect is even strengthened when it takes less time to start a business (Erel et al., 2012). Both the time required to start a business and the ease of doing business index are retrieved from World Bank Indicators (2017).

Furthermore, companies that trade repeatedly with specific countries or companies may engage in cross-border M&A activity in a particular country due to 'relationship building' by their trade behavior (Rossi & Volpin, 2004). Hence, bilateral trade is added as control variable and is calculated as the maximum of bilateral import and export between a pair of two countries. Bilateral trade data is derived from the World Integrated Trade Solution (2018).

Finally, a country's GDP is added as another country control variable. Countries with high GDP and good governance experience more M&A activities in their countries than other countries (Weitzel & Berns, 2006). In order to apply for normal distribution, the variable is

transformed into a log function. The World Bank Indicator (2016) GDP in current U.S. dollars presents the GDP data for all countries in this sample.

Regression design

This study uses a random effects model to examine both hypotheses. The data set contains two variables which are stable and do not vary over time, e.g. the legal origins and geographical location dummies. Hence, to maintain these variables in the regression a random effects model is used. Before running the regressions, a regression function is formulated below. In this regression function covering the period 1999-2016, β_x is the coefficient of the variables, u_{it} is a regular error term, a_i is an additional error term which allows for time-invariant variables.

The regression function which examines the effect of legal origins on the European cross-border M&A market volume is as follows:

$$VOLUME_{it} = \beta_0 + \beta_{1d}SCL_i + \beta_{2d}GCL_i + \beta_{3d}FCL_i + \beta_4 COUNTRYCNTRL_{it} + (u_{it} + a_i)$$

Where *dSCL* is a dummy variable which equals one if a country has the Scandinavian civil law origin and zero otherwise, *dGCL* is a dummy variable which equals one if a country has the German civil law origin and zero otherwise, *dFCL* is a dummy variable which equals one if a country has the French civil law origin and zero otherwise, and *COUNTRYCNTRL* are all country control variables, namely: gross domestic product (*LOGGDP*), bilateral trade (*BILATR*), Northern Europe (*NRTHEU*), Southern Europe (*STHEU*), Eastern Europe (*EASTEU*), Western Europe (*WESTEU*), government expenditure on education (*EDUCEXP),* time required to start a business (*STARTB*), ease of doing business index (*EASEB*), dummy variable for shared religious background, average difference in corporate income tax rate (*TAXR*), and R&D expenditure (RDEXP).

The second regression function examines if the effect of legal origins on the volume of cross-border M&A deals is weaker if a country becomes a member of the European Union, and is as follows:

$$VOLUME_{it} = \beta_0 + \beta_{1d}SCL_i + \beta_{2d}GCL_i + \beta_{3d}FCL_i + \beta_{4d}MEMBEU_{it} + \beta_5 COUNTRYCNTRL_{it} + (u_{it} + a_i)$$

Where *dSCL* is a dummy variable which equals one if a country has the Scandinavian civil law origin and zero otherwise, *dGCL* is a dummy variable which equals one if a country has the German civil law origin and zero otherwise, *dFCL* is a dummy variable which equals one if a country has the French civil law origin and zero otherwise, *dMEMBEU* is a dummy variable which equals one if a country is a member of the European Union and zero otherwise, and *COUNTRYCNTRL* are the same country control variables as for the first regression.

IV. Results and analysis

This section entails descriptive statistics and provides an answer to the hypotheses. Before running a regression, the variables are tested. Next, the hypotheses are tested using panel data, and in specific a random effects model is used. Finally, robustness checks are performed as well.

Descriptive statistics

The four legal origins are scattered among the 27 European sample countries. The legal systems of UK and Ireland has its roots in English common law. Scandinavian civil law influence the laws in Norway, Denmark, Finland and Sweden. France, Belgium, Netherlands, Greece, Italy, Spain, Lithuania, Portugal, and Romania are influenced by French civil law. Finally, German civil law influence law systems in Germany, Austria, Bulgaria, Croatia, Czech Republic, Hungary, Macedonia, Serbia, Slovenia, Slovakia, and Switzerland. Appendix B shows descriptive information about the number of countries ranked to their legal origin and membership of the EU. Tables 1 and 2 below summarizes this.

Table 1: An overview of European countries ranked to their legal origin (1999-2016)

	COMMON LAW	FRENCH CIVIL LAW	GERMAN CIVIL LAW	SCANDINAVIAN CIVIL LAW
COUNTRIES	2	10	11	4
%	7.41	37.04	40.74	14.81

Table 2: An overview of European countries ranked to accession of EU membership (1999-2016)

	EU MEMBERSHIP 1999	EU MEMBERSHIP 2004	EU MEMBERSHIP 2007	EU MEMBERSHIP 2013	NEVER JOINED EU MEMBERSHIP
COUNTRIES	14	6	2	1	4
%	51.85	22.22	7.41	3.71	14.81
CUMULATIVE TOTAL %	51.85	74.07	81.48	85.19	14.81

Table 1 provides information about legal origins across 27 European countries. It is interesting to see that more than of third of the countries are classified to either French civil law or German civil law. Scandinavian civil law is rooted in almost 15% of European countries, and English common law has a modest share of 7.41%.

Table 2 provides information about EU membership among countries. Roughly half of all countries were EU members in 1999. This percentage has dramatically increased during the time span 1999-2016 up to 85.19% in 2013. Four countries never wanted to or never became members of the EU due to various reasons.

Table 3 provides the mean of cross-border M&A events per year. The sample of this study contains a time period of 1999-2016, therefore the mean number of events is calculated as the total number of events per year divided by the number of sample countries.

Table 3: Mean number of cross-border M&A events per year.

YEAR	MEAN NUMBER OF EVENTS	MINIMUM	MAXIMUM
1999	4.7	0	24
2000	4.44	0	23
2001	2.67	0	15
2002	2.44	0	12
2003	1.44	0	10
2004	1.00	0	8
2005	1.41	0	10
2006	2.00	0	14
2007	3.33	0	12
2008	1.70	0	11
2009	0.96	0	7
2010	0.93	0	6
2011	0.70	0	4
2012	0.78	0	4
2013	0.48	0	4
2014	0.44	0	5
2015	0.63	0	4
2016	0.67	0	7

It is interesting to see that in the two first year of the time period, 1999 and 2000, the mean of the number of events is relatively high with regard to other years in the sample. Besides, also the maximum number of events, which is the maximum of the number of events in a country in a particular year, were high in those two years. An explanation for this boom could be that due to a combination of information technology revolution, continued deregulation, reductions in trade barriers, and the global trend toward privatization a new wave of M&As occurred (DePamphilis, 2015). However, in 2001 a recession hit the United States which caused a weakening of global growth (DePamphilis, 2015). This could explain why the mean

number of events decreases in 2001. The last seven years both the mean number of events and maximum of events are quite stable over time.

Table 4: Statistical description of the data

Variable	N	Mean	St. Dev.	Minimal	Maximum
- Independent variable:					
Volume	486	0,003937	0,059842	0	0,41667
- Dependent variable:					
Dummy common law	486	0,074074	0,262161	0	1
Dummy French civil law	486	0,333333	0,47189	0	1
Dummy German civil law	486	0,444444	0,497416	0	1
Dummy Scandinavian civil law	486	0,148148	0,355613	0	1
Dummy EU membership	486	0,728395	0,020197	0	1
- Control variable:					
LOG GDP	486	11,33615	0,667354	9,565955	12,59002
% R&D expenditure	486	0,015178	0,01031	0,001709	0,123277
Time to start business	486	24,46914	22,81327	3,5	138
Ease of doing business	486	30,18519	16,28543	3	67
Corporate tax rate	486	0,239432	0,075653	0,1	0,3958
Dummy North EU	486	0,185185	0,388848	0	1
Dummy South EU	486	0,148148	0,355613	0	1
Dummy West EU	486	0,296296	0,457094	0	1
Dummy East EU	486	0.37037	0,483401	0	1
% Education expenditure	486	0,049907	0,011776	0,023256	0,085596
% Bilateral trade	486	0,036721	0,05925	0	0,40715
Shared religion	486	0,288066	0,453329	0	1

Table 4 provides a statistical description of the independent, dependent, and control variables. In this study there are 27 countries with a time span of 18 years, resulting in 486 observations. In these 18 years 830 cross-border M&A deals have been completed in Europe. The average volume of a cross-border M&A deal per country per year is 0.39% and is partly due to several countries which did not experience a cross-border M&A deal in a specific year. Hence, this results in a minimum value of 0 when no deal has been completed and a maximum of 41.67% in 2014 when nearly half of all deals were completed with France as target nation.

Most sample countries are located in Eastern Europe (37.04%) followed by countries located in Western Europe (29.63%), Northern European countries (18.52%) and finally Southern European countries (14.81%). Furthermore, the average value of log GDP is $11,33615 million and has a quite low standard deviation.

Appendix C provides a more comprehensive table about the volume of European M&A market per country and it describes the number of events and transaction value per country, whether it is an acquirer or target country. Companies from France and Germany are more often appointed as acquiring, followed by the United Kingdom, Sweden and Switzerland. Besides, it is interesting to see that France companies are acquired by foreign countries in 17.35% of the cases. It seems to be against all odds because it is expected that France (which

laws are influenced by French civil law) would experience the lowest amount of cross-border M&A volume in their country, as suggested by hypothesis 1b. However, there are also other variables which may explain this surprising result and thus have to be controlled for in the analysis.

Research method tests

Breusch and Pagan Lagrangian multiplier test

In order to test if there is a significant difference across countries' variables with respect to time, a Breusch and Pagan Lagrangian multiplier test is conducted to check if panel data or a multiple cross-sectional regression can be used. The null hypothesis of the test is that there are no significant differences across units, i.e. there is no panel effect (Torres-Reyna, 2007). The p-value of this test equals 0.0000 which means that the null hypothesis is rejected and there is indeed a significant difference among countries. Hence, panel data can be used which is in line with the expectations.

Hausman test

This study contains variables which are stable and do not vary over time, e.g. legal origins and geographical location dummies. Therefore, it is expected that a random effects model should be used in order to retain the stable variables in the regression. To confirm the expectations, the Hausman test is conducted. Results are presented in appendix E. The p-value of this test is 0.9121 which is clearly not significant and hence the random effects model should be used.

Variable tests

Normal distribution

The variables are tested with the Skewness-Kurtosis test to examine if they are normally distributed. A first test implies that only the variable GDP is not normally distributed, but this is solved by converting it into a log function. Following the results from a second test, all variables are normal distributed.

Multicollinearity

If multicollinearity is presence in the dataset there is a strong correlation among the variables. When variables are highly correlated with one or more variables, other variables will have a relatively large standard error which can cause variables to be wrongly inflated, either being

unjustifiably significant or insignificant (Allen, 1997). To test for the presence of multicollinearity a 'Variance Inflation Factor' (VIF) test is used and results are presented in appendix D. Any number above five represents the presence of multicollinearity (Studenmund, 2011). First, a VIF test is conducted with all variables which results in five variables with a value higher than 5. What stands out in particular, is that the legal origins and geographical areas have a high VIF value. However, this high value can be explained by the fact that many countries in a specific area share their legal origin. For example, every Northern European country, except for Lithuania, share a Scandinavian civil law origin. In order to address the multicollinearity problem, the four geographical area dummies are removed from the regression analysis and a second VIF test is conducted and is presented in appendix D. All variables now have a value below five and the problem of multicollinearity is solved.

Autocorrelation

Autocorrelation is presence when error terms are correlated. In a random effect model there are two different error terms, one error term allows for random individual deviations from the average intercept and the other allows variables that are constant over time. To test if there is presence of autocorrelation in the data set, the Wooldridge test for autocorrelation is used. This test presents no significant results for the presence of autocorrelation. Results are presented in appendix F.

Heteroskedasticity

In panel data, the standard error components assumes that the disturbances have homoscedastic variances (Hsiao, 2003; Baltagi, 2005). In order to examine if the dataset is indeed homoscedastic, the Modified Wald test for heteroskedasticity is carried out. The results present that there is no presence of heteroskedasticity, which are shown in appendix G.

Legal origins and cross-border European M&A volume

In this section the influence of legal origins on the cross-border European M&A volume is empirically examined. Table 5 reports the regression result. Column 1 reports the regression results including the independent and dependent variables, whereas column 2 reports the regression results of dependent, independent and country control variables to see what happens to the results when control variables are added. Robust standard errors are shown in parentheses.

Table 5: Determinants of cross-border European M&A volume

	(1)	(2)
French civil law	.238633*	.0408524*
	(.245098)	(.0326417)
Scandinavian civil law	.0120537	.0108068
	(.0197589)	(.0341358)
German civil law	.0059556	.0454336
	(.0193911)	(.0311931)
Ease of doing business		-.0006585
		(.0005961)
Income tax		.0499391**
		(.0557622)
Days to start a business		-.0000843*
		(.0001273)
Log GDP		.0236816**
		(.0096389)
R&D expenditure		.2861377
		(.3261268)
Bilateral trade		.187228***
		(.0379003)
Education expenditure		-.1900209
		(.5030578)
Shared religion		.0315404**
		(.0049257)
Constant	.0246499	.3199808**
	(.0165581)*	(.1477235)
R^2	.0450	0.3133
N observations	486	486

***, **, * indicate significance at 1% percent, 5%, and 10% levels respectively.

The first column presents the results of the regression including dependent and independent variables. It is surprising that all three civil law categories show a positive relationship instead of the predicted negative relationship compared to the reference category English common law, although not significant. Besides, it is quite surprising that French civil law countries experience the highest volume cross-border M&As than the other two legal origins does, even on a 10% significance level. This is in contrast to other studies, in which French civil law countries experienced the lowest cross-border M&A volume in comparison with all other legal origins (Rossi & Volpin, 2004; Erel et al., 2012). However, a comment has to be made because both studies focus on approximately 50 countries on different continents. It is possible that French civil law countries in Europe experience a higher cross-border M&A volume while other French civil law countries on other continents do not. A possible explanation for this difference is that bidders within the EU-15 rely on a single currency which reduces the risk of foreign currency volatility. Besides, to some extent European countries operate in a single integrated market and legislative framework, which in overall reduces entry barriers, easing exploitation of economies of scale and the transfer of intellectual capital and technology, and fosters growth in cross-border deals (Campa & Moschieri, 2008). As can be seen in appendix C, France accounts for 17.35% of all cross-border M&A targets in Europe. There are factors driving an increase in M&A deals in France, such as the infrastructure and its assets (Moeller & Appadu, 2017).

Colum 2 represents the same regression but includes now country control variables as well. Again, all three civil law origins countries presents a positive relationship in comparison with countries from a English common law origin. However, a difference with regard to column 1 is that German civil law countries alternated French civil law countries with respect to the highest positive coefficient. After adding control variables, French civil law is still significant at 10% level, while other civil law categories are not significant at any level. Hence, hypotheses 1a, 1b, 1c, and 1d are not confirmed.

In addition, the ease of doing business index and the number of days to start a business show the expected negative relation, with only days required to start a business being significant at a 10% level. Hence, the longer it takes to start a business in a particular country, the lower the cross-border M&A volume flow in that country will be. Income tax presents a negative and significant relation, as in line with the expectations. The highly significant and positive relationship of bilateral trade indicates that the more often countries trade with each other, the more likely it is that a cross-border M&A takes place, which is in accordance with

the expectations. The same goes for a shared religion; if two countries share the same religion it is more often the case that the acquiring company takes over a target company in a country with the shared religion. This relation is significant at a 5% level. Furthermore, the higher a country's GDP the more likely it is that it will be targeted by another country, which is in line with the expectations. This positive relation is significant at a 5% level.

What is interesting to see is that there is a negative relationship between education expenditure and cross-border M&A volume, but it is not significant at all. It was expected that the higher the expenditure on education, the higher the human capital in a country which attracts cross-border M&A deals. It is possible that the higher the expenditure on education leads to a higher level of human capital, but this effect is weakened by the higher wages in a particular country which reduces the cross-border M&A deals. While in comparison, the expenditure on R&D shows a positive but not significant relation with regard to the cross-border M&A volume.

Legal origins, European Union membership, and cross-border European M&A volume

In this section the influence of EU membership on the effect of legal origins on cross-border European M&A volume is empirically examined by including a dummy variable which equals one if a country is a member of the EU, and zero otherwise. The same country control variables are used as in the former regression. Table 6 reports the regression results. Column 1 presents a regression covering the period 1999-2003 for all countries. In that time period Bulgaria, Croatia, Czech Republic, Hungary, Lithuania, Poland, Romania, Slovakia, and Slovenia were not yet a member of the EU. In this time period other countries were already members of the EU or yet to be, hence there is no weakened effect of legal origins on the volume of cross-border M&A deals due to becoming a member of the EU. Column 2 presents the time period 1999-2006, in which Hungary, Slovenia, Slovakia, Poland, Lithuania, and the Czech Republic became members of the EU. Next, column 3 presents the time period 1999-2012 because Bulgaria and Romania became an EU member in 2007. Finally, column 4 presents the entire time period covering the years 1999-2016. In 2013, Croatia became a member of the EU and this effect is hence captured in the last column.

Table 6: European Union membership and the effect of legal origins on European cross-border M&A volume

	(1)	(2)	(3)	(4)
French civil law	.038394*	.0270234*	.025651*	.0254015*
	(.0266843)	(.0473863)	(.0203927)	(.0426803)
Scandinavian civil law	.0338749	.0200081	.0187066	.0160011
	(.0204632)	(.0426934)	(.0204685)	(.0382117)
German civil law	.0293248	.0261629	.0257686	.0196044
	(.0248512)	(.0419469)	(.016933)	(.0483664)
EU membership	.0139894	.0357008	.0327796	.0322402
	(.0176461)	(.0197024)	(.0097296)	(.0165474)
Ease of doing business	-.0010407	-.0006	-.000372	-.0001448
	(.0003915)	(.0005742)	(.0003296)	(.0006678)
Income tax	.0570355*	.4463734**	.0447119**	.3037757**
	(.0458086)	(.1180284)	(.1164609)	(.1933699)
Days to start a business	-.0002482	-.0209381	-.0005421	-.0015846
	(.0002271)	(.0002147)	(.0003159)	(.0012891)
Log GDP	.0449966**	.0064829**	.0220176***	.0598439**
	(.0132982)	.0209381	(.0126314)	(.0288417)
R&D expenditure	1.215648	1.173929	.2869111	.1699755
	(.5165995)	(.6649987)	(.5622)	(.2131385)
Bilateral trade	.1353066**	.2214524**	.2161772***	.2318377***
	(.0497412)	(.072533)	(.0747185)	(.1195219)
Education expenditure	-1.291173	.5640078	.0579922	.2256049
	(.4798987)	(.9152235)	(.5618646)	(.3421765)
Shared religion	.004663**	.0122113***	.0448105**	.0319882**
	(.0074051)	(.0108224)	(.0121589)	(.0065342)
Constant	.4336892*	.0160353*	.2355195**	.3177694**
	(.1298599)	(.2314916)	(.1423055)	(.1012514)
R^2	0.3441	0.2745	0.3888	0.2999
N observations	135	216	378	486

***, **, * indicate significance at 1% percent, 5%, and 10% levels respectively.

Column 1 presents the results from the regression covering the time period 1999-2003 for all countries. Synchronous with the results from table 5, table 6 column 1 presents significant results for French civil law, shared religion, log GDP, and income tax, although the latter one lost some significance. In addition, the days required to start a business has lost its significance and the new independent variable EU membership is not significant at all.

Column 2 presents a time period covering the years 1999-2006 for all countries. Compared to column 1, all three civil law categories' coefficients only changed slightly its size. French civil law is the only civil law category which is significant, although on a 10% level. Besides, the EU membership coefficient is almost three times its size in comparison with column 1, but again it is not significant. Furthermore, expenditure on education changed its sign to positive with regard to column 1, which is in line with the expectations. The other control variables do not present different or surprising results.

Column 3 presents the time period 1999-2012, covering the years in which Bulgaria and Romania became EU members as well. Again, all legal origins' coefficients have slightly decreased in value when compared to column 2. However, French civil law is still the only category which is significant so no overall conclusions can be drawn. In addition, the country control variables presents roughly the same results as in previous columns, however a shared religion lost some of its significance, while both bilateral trade and log GDP is now significant at a 1% level.

Next, column 4 presents the time period covering all years in the data sample. This extension of years allows to see what happens when Croatia becomes an EU member, which happened in 2013. Again, all three civil law coefficients became smaller in contrast to the periods in which fewer countries were EU members. In addition, the control variables presents no surprises.

Overall, the four columns suggests that EU membership indeed lessen the effect of legal origins on the volume of cross-border M&As because all legal origin's coefficients decreases as more countries become a member of the EU (columns 2, 3, & 4). However, the results are not significant and therefore hypothesis 2 cannot be supported.

Robustness checks

A robustness check has been performed to test if the results of the regression analysis are consistent, robust, and provide reliable outcomes. In line with prior studies, the regression equation is re-estimated using the value instead of the number of cross-border European M&As to construct the dependent variable. The value of cross-border M&As deals is measured as a percentage of the total value of completed cross-border M&A deals per year. These results are presented below.

Table 7: Determinants of the value of cross-border European M&A volume, robust

	(1)	(2)
French civil law	11.66421*	15.50472*
	(7.17286)	(6.946476)
Scandinavian civil law	5.704723	7.386059
	(1.17278)	(4.696476)
German civil law	4.995355	6.710791
	(1.680679)	(2.586812)
Ease of doing business		-2.009316
		(.9955201)
Income tax		2.420377*
		(.2789976)
Days to start a business		-.0306928*
		(.0048783)
Log GDP		8.841236**
		(.08626275)
R&D expenditure		1.884123
		(.2866275)
Bilateral trade		24.81238**
		(.0407463)
Education expenditure		-1.849554
		(.6597121)
Shared religion		7.911834*
		(3.410954)
Constant	6.611421*	9.281503**
	(2.420292)	(3.368294)
R^2	0.0368	0.2641
N observations	486	486

***, **, * indicate significance at 1% percent, 5%, and 10% levels respectively.

Column 1 presents the robustness check for the regression without control variables. When re-estimating the dependent value by measuring the value of European cross-border M&A deals, the sign of the relations did not change, and the significance of French civil law remains the same after controlling for robustness. Furthermore, French civil law countries still have the highest positive coefficient, followed by Scandinavian civil law and German civil law countries respectively. Hence, it can be concluded that the earlier results are robust.

When adding control variables to the regression, column 2 presents the robustness check for the entire regression. Most of the variables are still significant or not significant at the same level as before, however there are some small differences. Income tax lost some of its significance (from 5% to 10%), and bilateral trade lost some its significance too, being now significance at a 5% level. No changes have occurred in all three civil law categories, shared religion, R&D expenditure, ease of doing business index education expenditure, and log GDP.

Table 8: European Union membership and the effect of legal origins on European cross-border M&A volume, robust

	(1)	(2)	(3)	(4)
French civil law	13.09014*	12.69232*	12.67959*	11.44507*
	(2.45101)	(2.320058)	(2.09147)	(2.004475)
Scandinavian civil law	6.697011	5.205394	4.953371	4.361121
	(1.118221)	(1.023877)	(1.001213)	(1.461912)
German civil law	4.52765	2.989819	2.840088	2.903442
	(1.41878)	(1.029871)	(1.009147)	(1.083062)
EU membership	3.889018	5.223947	5.410764	4.381935
	(.988236)	(1.115161)	(1.149882)	(1.69579)
Ease of doing business	-2.595039	-2.644069	-2.106542	-2.47098
	(0.4120809)	(.0285742)	(0.5598996)	(.0384553)
Income tax	3.732622**	4.351451*	3.840126**	3.176018**
	(.5456365)	(0.884863)	(.6267124)	(0.841163)
Days to start a business	-5.854155	-3.825853	-4.926026	-4.919343
	(.9360088)	(.7795328)	(.837164)	(0.9836463)
Log GDP	8.997801**	8.331231**	8.653037***	8.241833**
	(1.315165)	(1.209381)	(1.755538)	(1.716843)
R&D expenditure	1.811527	1.596814	1.343896	.1699755

	(.296590)	(.663614)	(.6949882)	(.2131385)
Bilateral trade	12.770887 **	13.62444**	12.21475***	11.12591***
	(.6341512)	(.8384241)	(0.5944581)	(0.861603)
Education expenditure	-7.25616*	-8.933204	-8.33207	-7.114289
	(1.29590)	(1.344834)	(1.207391)	(1.239843)
Shared religion	3.54163**	1.351428***	2.713596**	2.383942**
	(.036544)	(.0884411)	(.0623719)	(0.494217)
Constant	2.787826*	3.51213*	2.715733**	3.703149**
	(.2546489)	(.2297532)	(.2765020)	(.272549)
R^2	0.3105	0.4074	0.2594	0.3880
N observations	135	216	378	486

***, **, * indicate significance at 1% percent, 5%, and 10% levels respectively.

(5)

There are two minor differences when both column 1 from table 6 and 8 are compared. First, in table 8 the expenditure on education became significant at a 10% level, whereas it did not show any significance before. Besides, when performing robustness checks, the significance of income tax has increased to a 5% level. The rest in column 1 from table 8 resembles column 1 from table 6, based on its coefficients and significance levels.

When comparing both columns 2, table 8 presents an income tax rate with a lower significance level, but education expenditure has now lost its significance. Furthermore, the other variables show no differences between the two columns. Table 8 column 3 shows even no differences with column 3 in table 6, and the same holds true for both columns 4. Both columns 4 are a mirror image of each other, and show that log GDP lost some of its significance with regard to both columns 3. Hence to conclude, there are small differences between the columns and tables, but the regression outcomes are robust.

V. Discussion

This section discusses the results and limitations of the empirical analysis and recommendations for future studies.

This research highlights that rather than focusing on legal origins there is a need to consider other determinants which are evidently more important in determining cross-border European M&A volume. A variable which is often examined in order to explain cross-border M&A determinants is the disclosure of accounting standards. A higher quality of accounting disclosure system increases the likelihood that firms in a particular country are purchasers from firms abroad (Rossi & Volpin, 2004; Erel et al., 2012). However, data is only accessible for a small selected group of countries worldwide in an index created by the Center for International Financial Analysis and Research. This dataset covers only six countries in this paper's data set sample, and is only publicly accessible for the year 1990. Due to a combination of missing data for several countries and the fact that since 1990 a lot might have changed with regard to accounting disclosure systems, it is not included in this data sample. However, in other studies the accounting disclosure systems have a significant effect on cross-border M&A volume so an important determinant in the cross-border M&A volume may be missing in this study. (Rossi & Volpin, 2004; Erel et al., 2012; Buch & DeLong, 2004).

A limitation of this research is that some European countries may have evolved from a legal origin to another legal origin, due to various reasons, which makes it hard to completely categorize them in a particular legal origin. In addition, there are also cultural, political, and certain economic conditions of a particular country which can be reflected in national laws (La Porta et al., 2008). This research has ignored any legal origin evolution or foreign influences and has focused only on an original legal origin categorized by Reynolds & Flores (1989), instead of a mixed legal origin. For example, Croatia is a country which is strongly influenced by its past. Croatia is a former socialist country but after the collapse of the Soviet Union, it follows a German civil law system. Hence, it is possible that there are still certain influences from its former socialist law system which may differ from the traditional German civil law system. Therefore, an absolute classification is not possible and it may weaken the real effect of legal origins.

Another limitation of this research is that the shared religion is based on a data source from 2001. Atheism is more common among Western countries than almost two decades ago

and there is less belief in God worldwide (Laertius, 2018). In order to better match the data set, it is more reliable to use more recent data. However, this study uses the 2001 data on religion because other studies used this data as well (Rossi & Volpin, 2004; Erel et al., 2012). This resulted in a significant relationship between a shared religion and the volume of cross-border M&A market, as in line with the other studies. For future research it would be interesting to see what would happen to the results if atheism is taken into account.

Furthermore, the results indicate a rich set of future research possibilities. For example, it is common that countries become an EU member, however it is not common that a country leaves the EU. The United Kingdom is planning to leave the EU in the near future and it is interesting to see what kind of effect this will have on, for example, the cross-border M&A market or other macro-economic variables. Will firms from the UK after leaving the EU more often act as an acquirer because certain EU advantages are lost?

This study shows no significant results concerning legal origins and the cross-border M&A market, hence another recommendation is instead of focusing on the volume of the cross-border M&A market, future research could focus on the influence of legal origins on the size of control premium. It is possible that due to better investor protection in English common law countries, acquirers are willing to pay more for their target.

VI. Conclusion

In this paper it is examined if legal origins influence the volume of cross-border European M&A market, and if becoming an EU member lessen this influence. Many of the previously studied cross-border M&A volume determinants hold up in an international setting. The primary contribution of this study is not simply to verify cross-border M&A volume determinants, but to focus on the influence legal origins have in European countries.

The empirical evidence does not confirm legal origins as an explanation for the volume of European cross-border M&A market. These results are not consistent with the hypotheses that English common law countries experience a higher volume of cross-border M&A deals in their countries, followed by Scandinavian and German civil law countries, and finally French civil law countries which is expected to experience the least cross-border M&A deals. This is in sharp contrast with results found by other studies (Rossi & Volpin, 2004; Erel et al., 2012). However, this difference may be explained by the fact that this study focuses solely on European countries as research area while other studies focus on different countries worldwide. It is possible that research results are different because this study takes into account a certain amount of smaller countries which are not taken into account in more international studies, because they focus more on large and developed countries. A possible explanation for the differences in research results, is that the United States is not included in this study. The United States' laws share an English common law origin, and is included in almost any other study with regard to cross-border M&As. Besides, the United States is one of the biggest acquirers in the world, and it is also favored by other countries as a potential take over target (Imaa, 2017). Hence, maybe if United States were included in this study, the results would show the expected signs with regard to legal origins influence on the volume of cross-border M&As.

Besides, this study does not confirm a reduced effect of legal origins' influence by becoming a member of the EU. The empirical results show that when more countries join the EU, the effect of legal origins on cross-border M&A volume becomes weaker. However, the results are not statistically significant and no conclusion can be draw in order to state that joining the EU equalize differences in laws among countries, thereby lessen the effect of legal origins.

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VIII. Appendices

Appendix A

Description and symbols of the variables included in the study and their sources

Variable	Symbol	Description	Source
Dependent variable:			
-Volume European M&A market	VOL	% of traded companies targeted in a cross-border completed deal.	Thomson One
Independent variables:			
-Common law	CML	Equals one if the origin is common law, zero otherwise	Reynold & Flores (1989)
-French civil law	FCL	Equals one if the origin is French civil law, zero otherwise	Reynold & Flores (1989)
-German civil law	GCL	Equals one if the origin is German civil law, zero otherwise	Reynold & Flores (1989)
-Scandinavian civil law	SCL	Equals one if the origin is Scandinavian civil law, zero otherwise	Reynold & Flores (1989)
-Membership EU	MEMBEU	Equals one if a country is member of the European Union, zero otherwise	Central Intelligence Agency, 2001
Country control variables:			
-Gross domestic product	LOGGDP	Gross domestic product measured in current dollars, log transformed	World Bank Indicator
-Bilateral trade	BILATR	Defined as imports from country *b* to country *s* as a percentage of total imports of country *s*	World Bank Indicator
-Northern Europe	NRTHEU	Equals one if target and acquirer are both located on Northern Europe, zero otherwise	Central Intelligence Agency, 2001
-Southern Europe	STHEU	Equals one if target and acquirer are both located on Southern Europe, zero otherwise	Central Intelligence Agency, 2001
-Eastern Europe	EASTHEU	Equals one if target and acquirer are both located on Eastern Europe, zero otherwise	Central Intelligence Agency, 2001

-Western Europe	WESTEU	Equals one if target and acquirer are both located on Western Europe, zero otherwise	Central Intelligence Agency, 2001
-Government education expenditure	EDUCEXP	Government expenditure on education, measured as % of GDP	World Bank Indicator
-R&D expenditure	RDEXP	R&D expenditure measured as % of GDP	World Bank Indicator
-Same religion	SMREL	Equals one if target and acquirer share their main religious conviction. ranked on Catholicism, Protestantism, zero otherwise	Central Intelligence Agency, 2001
-Ease of doing business index	EASEB	Ease of doing business index 1 = most business-friendly	World Bank Indicator
-Time required to start a business	STARTB	Time required to start a business measured in days	World Bank Indicator
-Corporate tax rate	TAXR	Average difference between acquirer and target firm's corporate income tax rate	KPMG, 2017

Appendix B

An overview of European countries ranked on its legal origin and European Union membership

Country	English common law	Scandinavian civil law	German civil law	French civil law	European Union membership
Austria	No	No	**Yes**	No	**Yes**
Belgium	No	No	No	**Yes**	**Yes**
Bulgaria	No	No	**Yes**	No	**Yes****
Croatia	No	No	**Yes**	No	**Yes*****
Czech Republic	No	No	**Yes**	No	**Yes***
Denmark	No	**Yes**	No	No	**Yes**
Finland	No	**Yes**	No	No	**Yes**
France	No	No	No	**Yes**	**Yes**
Germany	No	No	**Yes**	No	**Yes**
Greece	No	No	No	**Yes**	**Yes**
Hungary	No	No	**Yes**	No	**Yes***
Ireland	**Yes**	No	No	No	**Yes**
Italy	No	No	No	**Yes**	**Yes**
Lithuania	No	No	No	**Yes**	**Yes***
Macedonia	No	No	**Yes**	No	No
Netherlands	No	No	No	**Yes**	**Yes**
Norway	No	**Yes**	No	No	No
Poland	No	No	No	**Yes**	**Yes***
Portugal	No	No	No	**Yes**	**Yes**
Romania	No	No	No	**Yes**	**Yes****
Serbia	No	No	**Yes**	No	No
Slovakia	No	No	**Yes**	No	**Yes***
Slovenia	No	No	**Yes**	No	**Yes***
Spain	No	No	No	**Yes**	**Yes**
Sweden	No	**Yes**	No	No	**Yes**
Switzerland	No	No	**Yes**	No	No
United Kingdom	**Yes**	No	No	No	**Yes**

Joined the EU * in 2004, ** in 2007, and *** in 2013

Appendix C

Descriptive percentages of European cross-border M&A activities (1999-2016)

	as bidder		as target	
	(by number of events)	(by value)	(by number of events)	(by value)
Austria	0.0325	0.0104	0.0204	0.0226
Belgium	0.0590	0.0360	0.0277	0.0584
Bulgaria	0.0012	0.0001	0.0072	0.0023
Croatia	0.0012	0.0001	0.0084	0.0007
Czech Republic	0.0048	0.0030	0.0193	0.0198
Denmark	0.0181	0.0021	0.0157	0.0017
Finland	0.0265	0.0346	0.0181	0.0070
France	0.1518	0.2593	0.1735	0.2383
Germany	0.1446	0.1836	0.1301	0.0822
Greece	0.0133	0.0198	0.0313	0.0214
Hungary	0.0048	0.0018	0.0108	0.0291
Ireland-Rep	0.0096	0.0011	0.0036	0.0001
Italy	0.0795	0.0990	0.0373	0.0553
Lithuania	0.0012	0.0004	0.0181	0.0312
Macedonia	0.0000	0.0000	0.0024	0.0001
Netherlands	0.0554	0.0185	0.0422	0.0799
Norway	0.0373	0.0081	0.0651	0.0392
Poland	0.0229	0.0025	0.1024	0.0119
Portugal	0.0120	0.0040	0.0289	0.0254
Romania	0.0036	0.0001	0.0145	0.0066
Serbia	0.0024	0.0001	0.0048	0.0042
Slovak-Rep	0.0012	0.0001	0.0060	0.0001
Slovenia	0.0024	0.0001	0.0084	0.0017
Spain	0.0663	0.1111	0.0542	0.1069
Sweden	0.0831	0.0310	0.0542	0.0342
Switzerland	0.0711	0.0850	0.0410	0.0744
United Kingdom	0.0940	0.0883	0.0542	0.0457

Appendix D

Multicollinearity check by performing VIF tests

a) including all dependent and control variables

```
. vif
```

Variable	VIF	1/VIF
SCL	13.12	0.076228
NRTHEU	9.13	0.109549
FCL	7.38	0.135570
GCL	7.27	0.137504
EASTEU	5.57	0.179674
LOGGDP	3.73	0.267821
EDUCEXP	3.24	0.308666
TAXR	2.87	0.348361
EASEB	2.64	0.378358
STHEU	2.49	0.402010
RDEXP	2.40	0.417108
MEMBEU	1.71	0.585851
STARTB	1.55	0.644518
BILATR	1.33	0.751067
SMREL	1.28	0.778410
Mean VIF	4.38	

b) all variables excluding geographical area variables

```
. vif
```

Variable	VIF	1/VIF
GCL	4.97	0.175257
FCL	4.73	0.176022
LOGGDP	2.97	0.336775
EDUCEXP	2.73	0.366848
TAXR	2.65	0.377233
CML	2.37	0.421465
RDEXP	2.15	0.465734
EASEB	2.07	0.484246
MEMBEU	1.62	0.618062
STARTB	1.42	0.704677
SMREL	1.27	0.789139
BILATR	1.25	0.802889
Mean VIF	2.52	

Appendix E

Results of Hausman test

	Coefficients (b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
TAXR	.0593019	.062005	-.002703	.0398471
RDEXP	.3737207	.3105896	.0631311	.080561
LOGGDP	.0225695	.0278779	-.0053084	.0121096
BILATR	.1908955	.1899326	.0009629	.0061401
EDUCEXP	-.0203952	-.201915	.1815199	.2570862
STARTB	-.0000814	-.0000654	-.000016	.0000462
SMREL	.0312832	.0314747	-.0001915	.0008091

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 2.08
Prob>chi2 = 0.9121

Appendix F

Results of Wooldridge test for autocorrelation

```
Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      26) =      6.125
           Prob > F =      0.0736
```

Appendix G

Results of Modified Wald test for groupwise heteroskedasticity

```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (27)  =     14.71
Prob>chi2 =      0.0741
```