

Is it time to fiddle with your portfolio?

With more bad news about the credit crunch emerging every week, investors with money to spare could be excused for fleeing the volatile stock market, and looking for an alternative home for their money. A new CEPR paper examines the case for an asset class few investors are likely to have considered - violins.

CEPR Researcher **Kathryn Graddy** and co-author **Philip Margolis** have painstakingly assembled information about the sale and resale of top-notch fiddles by famous makers such as Stradivari, since the middle of the nineteenth century, to assess whether they are a viable investment.

Measuring the price of violins is not as simple as it might sound. First, the market for the best violins is 'thin' - there are a limited number of them, and they change hands rarely (on average once every 33 years, according to the authors' analysis); and data can be hard to come by, because many are sold privately or through dealers, instead of at public auction.

And simply taking an average price for the instruments sold at auction in a particular year ignores the facts that they differ greatly in quality and that when prices are booming, the owners of better-quality violins may decide to put theirs up for sale, skewing the results.

Economists have developed two main ways of overcoming these problems. One is to follow the sale and resale of exactly the same item, to see how much its price has increased over time - the methodology used, for example, in the well-known Case-Shiller indices of US house prices.

This method clearly shows price inflation, without the problem of allowing for differences in quality; but since it can only be carried out on individual violins that have come up for sale at least twice, the size of the sample is inevitably restricted.

Alternatively, it is possible to construct a 'hedonic' index, using a much larger sample of items, and including some measure of their quality. National

statisticians use this methodology for calculating inflation in, for example, consumer electronics, where comparing the price of 'a television set' two decades ago to 'a television set' today would miss the dramatic transformation in quality that has taken place over that period.

Since both these methods have advantages and drawbacks, Graddy and Margolis decide to use both when assessing how well violins have performed as an asset class. First, they have scoured through hundreds of auction catalogues and price lists dating back to 1850, to construct a database of 75 examples of violins being sold and then resold - and used this information in a regression analysis to calculate the average annual return.

Next, they assemble a much bigger database of individual violin-sales at auction since 1980. Some prices were taken from publications, others came from the catalogues of auction houses in London, Paris, Vienna and Rome. The cheapest violin in the dataset was sold for £1,155; the most expensive - a Stradivarius - fetched £1.8 million.

In order to capture the differing quality of the violins sold when constructing their regressions, to make it a hedonic index, the authors separate them into 'schools', including Old Italian (violins made in Italy between 1574 and 1850); French; and Modern Italian (1820 to 1979). They are also able to look at the differing performance of violins from specific makers, including the most famous, Stradivari and Del Gesu.

Looking at the results of the repeat sales, Graddy and Margolis find that the mean nominal annual return on violins is 6.11%. For the hedonic index they have constructed using the bigger sample, the mean return is 7.51%.

Including the commission, which buyers must pay to auction-houses when they purchase a violin, reduces the annual return by approximately 0.5% - because it usually amounts to around 15% of the sale price, and violins change hands on average every 33 years.

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Having calculated mean returns using their two different methodologies, the authors then adjust these results for inflation, in order to compare the investment returns on violins to that of other asset classes. They find real returns are between 3.3% and 4%, both over the 1980–2005 period covered by both indices, and by the longer time-horizon encompassed by the repeat-sale data.

Because they know the maker of each of the violins in their sample, the authors are also able to see how particular groups of violin have performed. They find that those made by Stradivari or Del Gesu have grown in value more quickly than those of less prestigious makers – although they have still not delivered such strong returns as fine art.

However, another trend the authors point out is that so-called Modern Italian violins – those made from the nineteenth century onwards – are starting to catch up with more traditional Old Italian ones. This, they

suggest, may be because the prices of the Stradivari and Del Gesu favoured by investors have become so stratospheric that musicians can no longer afford them – and they are beginning to appreciate that as far as quality of sound is concerned, a more modern instrument may be just as satisfactory.

Compared to stocks or bonds, the returns on violins are fairly modest; but the authors point out that they have a lower standard deviation – in other words they are more stable than the returns from investing in conventional assets. They are also slightly negatively correlated with equities and bonds – they tend not to move in the same direction – so, extraordinary as it may seem, violins might be a useful asset to have in a diversified investment portfolio.

CEPR DP6583 Fiddling with Value: Violins as an Investment? by Kathryn Graddy and Philip Margolis

Patently too expensive

In order to turn a brilliant invention into a lucrative business, the first step is to have the idea protected by a patent. But for entrepreneurial geniuses hoping to break the European market, this is far from a simple matter. A new CEPR paper suggests there would be considerable advantages from making it cheaper, and more straightforward.

Despite the existence of the Single Market, even once the centralised European Patent Office has to grant a patent – a process that can itself take up to four years – in order to have the patent enforced, the patent-holder must pay an initial validation fee to each country in which it wants the patent to be enforced. They must also pay an annual renewal fee each year after that.

There can be translation costs, too: an application can be submitted to the EPO in English, German or French; but it must then be translated, if necessary, into the national language of the countries in which it is to be enforced.

This makes the process of getting a patent that covers Europe as a whole more expensive and cumbersome than, for example, the United States or Japan. Companies frequently complain about the costs, and arguments have raged about whether it should be replaced by a universal, EU-wide patent ever since the European Patent Convention was signed in 1977, then by just eight countries.

CEPR Researchers Dietmar Harhoff and Bruno van Pottelsberghe de la Potterie, and co-authors Karin Hoisl and Bettina Reichl, try to give these arguments

some factual basis, by quantifying the effects of renewal fees on the number of patents validated in each of the 32 countries now covered by the Convention.

In order to do this, they use the kind of 'gravity' model now widely used by economists to analyse what factors influence international trade flows. These models use geographical distance as one explanatory factor, but also allow other variables – such as customs tariffs – to influence the 'push' or 'pull' of goods from one country to another.

The authors treat the fees charged by European countries to validate and renew a patent as analogous to Customs tariffs – they are transactions costs. These costs vary widely from one country to another: the UK, Belgium, Switzerland and Monaco charge no validation fees at all; most countries charge a fixed price; and some, including Austria and Denmark, levy an extra fee if the patent is especially long. In 2003, one of the three years the authors analyse, the average fee paid was 135 euros, with the highest being 596 euros.

Harhoff et al. also try to take into account the translation costs incurred in having a patent validated in a country where the language it was originally granted in is not spoken. They do not have detailed translation costs for each patent – and indeed suggest this as the subject of future research – but in general, translation into Nordic languages is more expensive than into southern European languages such as Spanish, so they are able to include a variable for high or low

translation costs.

Using these variables, the authors then construct a gravity model to analyse the 'flow' of patents between the applicant country – where the individual or firm applying for the patent comes from – and each specific country where the patent is validated, once it has been granted centrally by the EPO.

The results of the model show that, not surprisingly, the size and GDP per capita matters in determining patent flows. In fact, it seems to be stronger as a 'push' than as a 'pull' factor: a 1% increase in GDP per capita in the applicant country increases the number of patents validated by 1.7%. In the other direction, a 1% increase in GDP per capita in the recipient country increases patent flow by 0.9%. These wealth effects have become weaker over time, however, suggesting that even countries towards the bottom of the income scale are finding it more important to protect their inventions; perhaps because of the implementation of the global 'TRIPS' agreement on enforcing intellectual property rights, under the auspices of the World Trade Organisation.

Similarly, country-size is also important in determining patent flows, both as far as applicant and recipient countries are concerned; but it is a stronger push than pull factor.

Physical distance is also revealed to be important: a 10% increase in the distance between two countries' capital cities reduces the flow of patents between them by 5%, according to the model's findings.

However, the main purpose of the gravity model is to measure the impact of fees on patent validations – and it shows that they do indeed influence a company's decision about which countries to have its patent enforced in. Each 10% increase in validation fees reduces the flow of patents by 1%; and each 10% increase in renewal fees reduces the flow by 4%.

These links are strong enough, the authors argue, to show that a community-wide patent, which would apply to all signatories of the European Patent Convention without the need for separate translation, validation and renewal processes, would in itself be sufficient to change firms' behaviour, and increase the number of patents implemented throughout Europe.

DP6565 Patent Validation at the Country Level – the Role of Fees and Translation Costs by Dietmar Harhoff, Karin Hoisl, Bettina Reichl and Bruno van Pottelsberghe de la Potterie

Can democracy save Kenya from civil war?

As thousands of opposition protestors marched on the streets of the Kenyan capital, Nairobi, in January, and hundreds died in internecine skirmishes, the rest of the world held its breath, anxious that one of Africa's democracies was about to descend into violent conflict.

The risk of outright war seems to have been averted for now, but the outbreak of violence was a reminder that civil war is an ever-present threat for many post-colonial states. Civil wars are bloody and debilitating, and can trap developing countries in a spiral of poverty and war, as competing factions scrap over resources, and destitute youths with few alternatives are pressed into serving as soldiers.

Because of their devastating impact on fragile countries, determining what causes civil wars to break out has become a key theme of development economics. One simple answer is poverty, and a number of studies have shown a connection between weak economic growth and armed conflict. New CEPR research shows, however, that tough economic times are not equally likely to sweep all countries into an outbreak of internecine bloodletting – democratic institutions can act as a barrier against civil war. CEPR

Researcher Antonio Ciccone and co-author Markus Brückner focus on Sub-Saharan Africa, where civil conflicts have been rife in the past two decades.

Simply examining the connection between economic growth and civil wars directly is not enough, because it is difficult to disentangle cause and effect. When a conflict is brewing, it may also depress investment, entrepreneurial activity and so on; and there may be common economic and social factors which – at the same time – make the outbreak of civil war likely; and put downward pressure on the economy.

To avoid these methodological pitfalls, the authors exploit a key factor in determining the performance of Sub-Saharan Africa's economies – international commodity prices. Since many of these developing countries are heavily dependent on exporting raw materials, a shift in commodity prices has a strong effect on their economy. Since commodity prices are largely determined on the global market, however, they cannot be confused with the causes of civil conflict at home.

Thus, the authors use the International Monetary Fund's indices of international commodity prices to construct a specific price index for each country over

the period they study, based on which particular resources it exports and in what proportions. They test their indices to see whether they are a good proxy for income growth, and find that in general, a 10 percentage point increase in commodity prices increases income growth by 0.43 percentage points.

To measure the prevalence of civil wars, the authors use the findings of a comprehensive Swedish project, which aims to record systematically every incidence of civil conflict throughout the world. The Uppsala Conflict Data Program tracks the outbreak of civil conflicts (which they define as involving at least 25 deaths) and civil wars (involving at least 1,000 deaths), and Bruckner and Ciccone are able to use the 2007 dataset from this project to provide information about which Sub-Saharan African countries have been engaged in civil wars since the 1980s.

Initially, when they carry out an instrumental variable regression to test the connection between civil conflict and commodity price growth, they find that there is no statistically significant connection – in other words, it appears that weak economic growth (as indicated by weak international commodity prices) does not cause civil conflict.

However, the authors then test whether the presence of democracy makes any difference to the effects of commodity prices and civil war. As a measure of how democratic a country is, they use the Polity IV database, produced by a team of US academics. It examines how freely the public can exercise control over their rulers – whether there are checks and balances on rulers; and whether the population can freely exercise their democratic and civil rights. The researchers assign each country a score from -10 to +10 and then use these scores to give each country either a 1, if it is democratic; or a 0, if it is not.

When they separate their results into two groups – the democratic and the undemocratic countries – a much stronger, and more interesting pattern emerges. For undemocratic countries, there is a strong connection between commodity prices (and hence economic growth) and domestic conflict. Where raw materials are cheap, and the economy is suffering accordingly, it is more likely that a civil war ensues. For those countries that score a 1 for democracy, the influence of lower commodity prices is much weaker – in fact, too weak to be statistically significant.

In other words, although it is true that a deterioration in the economic climate tends to make a civil war more

likely, the link is much stronger in countries with an autocratic regime. In general, a 5 percentage point fall in income growth tends to increase the likelihood of civil war by 8%, in non-democracies. But where democracy exists it seems to act to dampen the impact of economic weakness.

The authors check their results using a second measure of democracy – the assessment of a country's liberty produced by US think-tank Freedom House – and reproduce the same finding. Although in general, weaker income growth tends to spark outbreaks of violent unrest, perhaps as fresh groups exploit high unemployment and the desperation of poverty to make a grab for power, democratic institutions seem to act as a block.

They also try out a series of alternative factors to see whether they seem to have a similar role in checking the outbreak of civil war, including whether the country has been a British colony in the past, or has inherited the British legal system (both of which have been identified as causes of stronger economic growth); ethnic fractionalisation; and the presence of political and institutional checks and balances on power. However, only democracy seems to have a special role in helping to contain the damage wrought by weak economic growth.

These new findings help to confirm that securing long-term, stable economic growth is important to helping countries to escape from the trap of poverty and the repeated slide towards civil conflict; but they also provide some comfort to those who fear that poverty and civil war are inextricably bound together.

Economist Paul Collier, in his recent book *The Bottom Billion*, argued that rich nations should offer to underpin the security of democratically-established governments in developing countries, by sending in troops where necessary, to prevent them from sliding repeatedly into conflict. Bruckner and Ciccone's findings suggest that democracy itself can act as a bulwark against civil war.

DP 6568 Growth, Democracy and Civil War by Markus Bruckner and Antonio Ciccone

Moral compass shows way to economic development

Whether people trust their neighbours may seem more a question of morality or religion than economics, but a new CEPR paper suggests that social values can be crucial to determining a nation's wealth and political success.

A growing body of research in recent years has studied the influence of history on levels of economic development today. But these studies often leave unanswered the question of precisely what mechanism is at work. CEPR Researcher Guido Tabellini believes that 'culture' – specifically, generalised norms about morality and trust – can provide the missing link in these political-economic explanations; and he sets out to prove it, using a battery of data about social beliefs, political institutions and even trade specialisations, across the world.

Political scientists and economists often try to derive a complete explanation from the way that institutions – such as parliamentary democracy, for example – interact with people's individual motivations. Corruption and conflict may endure despite elections, for example, because some individuals are able to exploit the process to their own advantage. Politics is an ongoing struggle over the distribution of resources. But Tabellini argues that explanations of this kind fail to account for the behaviour of thousands of atomistic individuals at grass-roots level, which can nevertheless affect country-wide political developments.

Political participation is much more intense in some countries than others, for example; and some electorates seem to demand higher ethical standards of their politicians, and punish corruption more harshly at the ballot box. Differences of this kind are difficult to explain on the basis of individual self-interest; but they can nevertheless influence historical and political outcomes.

Tabellini argues that slow-moving, persistent cultural values can help to fill the gap here, explaining, for example, why the abrupt arrival of new political institutions – after independence from colonial rule, say – does not always change things overnight.

In particular, he says there is a crucial difference between generalised and more limited morality. Generalised morality means the acceptance that abstract individuals are entitled to rights, and equal treatment. Limited morality is more like 'honour among thieves' – in a more hierarchical society, individuals may believe that members of their family, or clan, or close associates are entitled to respect; but at the same time it may be deemed acceptable to behave quite selfishly or opportunistically to anyone outside the group.

Tabellini argues that in a society where norms of generalised morality are widespread, free-riding is likely to be less common; it may be easier to get the rule of law off the ground; and voting is more likely to be motivated by concerns about social welfare, rather than individualistic calculations of personal gain.

In this way, generalised morality can help to generate political stability, better governance, and economic success.

In setting out to test this idea, Tabellini exploits the widely-used World Value Surveys, a series of studies carried out four times between 1981 and 2000, and covering a range of up to 70 countries. The surveys asked a large number of questions about beliefs and values, but he focuses on two that capture the notion of generalised morality in which he is interested.

Respondents were asked: 'Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?', and Tabellini uses their answers to score whether they had the value of trust, or not. Second, they were asked to pick which of several values it was especially important for parents to pass on to their children, and one possible answer was 'tolerance and respect for other people.'

Taken together, Tabellini interprets the responses to these two questions as an indication of the presence or absence of generalised morality

He then sets out to demonstrate two 'stylised facts', which begin to build up a cultural explanation for economic and political outcomes. First, governance in a particular country tends to be good or bad across a whole range of dimensions – as Tabellini puts it, 'policy distortions and government inefficiencies are often clustered together, as if they had a common cause'.

The second stylised fact is that moral values tend to be very persistent through generations. He shows that levels of 'trust' among third-generation immigrants to the US remain strongly correlated with the average level in their country of origin.

There is also a strong correlation between an immigrant's propensity to hold the value of trust, and the political institutions in their country-of-origin more than a century ago. Immigrants from countries that were democratic in the distant past (Tabellini uses measures from 1850, 1875 and 1900), tend to have higher levels of trust. Thus these generalised moral values shift very slowly over time, and national political history seems to have a strong hold over them.

These stylised facts provide some evidence of a correlation between moral values and institutions; but

Tabellini wants to demonstrate causation – and for that he uses a series of instrumental variable regressions.

To avoid the risk that he is picking up reverse causation – in other words, that good institutions cause generalised moral values, instead of vice versa – the author needs to find an alternative variable to stand in for the value-measures themselves: something which is closely correlated with it, but does not itself have causal power over political institutions.

For this purpose, he uses two of the 'deep' rules of a language's grammar, which linguists have connected with how hierarchical a society is. One is the use of pronouns: in Italian, for example, the speaker can choose whether or not to use the pronoun in a sentence; in English, they cannot drop it. Linguists have suggested this is characteristic of cultures that give a greater focus to the individual, relative to his social surroundings – and thus to individual rights.

The second grammatical rule is the division between an informal, *tu* form of address, and a more formal *vous* form. Many languages once had this distinction, separating closer acquaintances from society more generally, but many have dropped it over the years. Some, however, including French and German, still keep it, perhaps suggesting the persistence of more hierarchical beliefs.

These putative connections between grammar and values may sound far-fetched, but Tabellini uses data from multilingual countries to show that there is a strong correlation between the more hierarchical grammar-rules, and the prevalence of the value of 'trust' – even where political institutions are exactly the same.

With these linguistic markers as variables, Tabellini then carries out a series of different regressions to illustrate the connections between cultural values and contemporary outcomes. He finds that the linguistic rules – and thus cultural values – explain the 'quality of government' across countries, controlling for education, per capita income and a range of other factors.

Similarly, using data from 69 different regions within European countries, he shows that the cultural values of trust and respect are strongly correlated with per capita output. He also follows other economists who have linked trade with the facility of making binding contracts, and finds that countries with generalised moral norms are more able to succeed in trade

specialisations which require contracts – in effect, they have a comparative advantage against countries where trust is harder to find.

Tabellini also examines the way that shared values influence voting outcomes. The political scientist Robert Putnam conducted a well-known study comparing levels of what he called 'social capital' between more affluent Northern Italy, and the poorer South, where corruption is still much more of a problem. Tabellini explores this idea, relying on the fact that if a public prosecutor in Italy wants to investigate an elected representative, they must make a formal request to parliament.

Since these requests are a matter of public knowledge, and until the early 1990s Italian voters could indicate their preference for particular candidates in a party list voting system, he can track how severely politicians are penalised once it is known that prosecutors want to investigate them.

In the regions of Italy where 'trust' and 'respect' are measured to be weakest, incumbents with a request for investigation against them are barely penalised at all – in fact, public support for them at the polls increases slightly. In areas where generalised moral values are stronger, however, the incumbent's vote decreases by 20-35%. Given that political institutions themselves are the same throughout Italy, Tabellini argues that this is evidence of exactly the sort of mechanism he is investigating – moral norms affecting political outcomes.

Both economists and political scientists often regard 'cultural' explanations as woolly and weak, when compared to hard-nosed assessments of individual agents' incentives and the concrete details of institutions. In this paper, however, Tabellini argues that in fact, reducing political and economic developments to incentives and institutions alone fails to explain puzzling and persistent trends. He tries to fill this explanatory gap with the notion of cultural values – specifically, a generalised acceptance that other individuals can be trusted, and should be respected. Norms like these are passed on from generation to generation, and very slow to change; but once embedded, he argues, they can have dramatic causal effects in their own right.

DP 6589 Culture and Institutions by Guido Tabellini

The Centre for Economic Policy Research (www.cepr.org), founded in 1983, is a network of over 700 researchers based mainly in universities throughout Europe, who collaborate through the Centre in research and its dissemination. The Centre's goal is to promote research excellence and policy relevance in European economics. CEPR Research Fellows and Affiliates are based in over 237 different institutions in 28 countries. Because it draws on such a large network of researchers, CEPR is able to produce a wide range of research which not only addresses key European policy issues, but also reflects a broad spectrum of individual viewpoints and perspectives. CEPR has made key contributions to a wide range of European and global policy issues for over two decades.

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