"The integration of banking and commerce: a global perspective"

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The integration of banking and commerce: a global perspective

Abstract

This study extends the mean-variance portfolio analysis of Reichert, Wall, and Liang (2008) among six developed countries: US, Canada, Great Britain, Germany, France, and Japan. By combing the various industries into efficient portfolios, US, Canada, and UK would have reduced their risk substantially and their average returns vary little by diversifying into the retail sector. These results further support the empirical results in the earlier studies of Reichert, Wall, and Liang (2008). However, the authors could not find the similar pattern in Germany, Japan, and France. Besides, by forming global portfolios where the most profitable industries in various countries, this study also provides some evidence of the cross-border integration benefit of banking and commerce. While profitable, it may entail a significant increase in risk.

Introduction

The Glass-Stegal Act imposed restrictions on deposit rates, interstate expansion, and the provision of various types of financial and non-financial services banks could offer. Increased demand for credit and rising interest finally prompted Congress to relax these restrictions. The most recent major deregulatory measure was the Gramm-Leach-Bliley Act of 1999 (GLB Act) which allowed banks to affiliate with other financial firms, such as investment banking and insurance firms but still maintained the separation of banking and commerce. At present, a commercial firm generally cannot acquire control of a commercial bank, nor can a commercial bank acquire a commercial firm. This paper extends a recent article by Reichert, Wall, and Liang (2008) which examined the risk and turn implications surrounding the integration of banking and commerce in the US. Thus current paper extends the analysis beyond the US and provides a similar mean-variance portfolio analysis for five foreign countries: Canada, Great Britain, Germany, France, and Japan. The current article organized as follows. In Section 1 we summarize the findings reported in the earlier paper, discuss the potential costs and benefits of integrating the banking and commerce, and provides some background regarding foreign banking laws and regulations. The Section 2 briefly describes the data used in the analysis. The Section 3 contains our empirical results for both within-country and cross-border portfolios. Finally, the last Section presents the conclusion which generally support the previous empirical evidence regarding within-country diversification into the retail sector, while cross-border diversification may generate significant profits but at relatively high risk.

1. Literature review

In a recent paper, Reichert, Wall, and Liang (2008) examined the potential increase in return (or reduction in risk) from combining various industries into efficient portfolios. The analysis of potential gains from combining industries into portfolios uses industry level ROE data calculated using corporate income tax returns filed with the IRS between 1994 and 2004. The primary analysis is conducted using data complied for ten financial and non-financial industries. The paper found potential gains to banking when diversification into the commercial sector is permitted and significant gains to the commercial sector when entering the banking sector. Pair-wise combinations of BHCs with other industries identified the potential for a 50 percent increase in ROE could be achieved by 25% investment in construction and a 75% investment in retail with a significant reduction in risk. On the other hand, combinations of BHCs with the six other industries could not produce a 50 percent increase in ROE, or could only do so with a substantial increase in risk.

When mean-variance efficient portfolios across all ten industries were formed the potential for higher returns at the same level of risk was even greater. For example, a BHC's historical average ROE of approximately 8% could be increased to 11% with no increase in risk by investing in a portfolio with 15.4% of its assets in banking and the remaining shares invested in the following sectors: non-bank financial services (15.7%), retail (27.3%), wholesale (21.8%), and construction (11.7%). Furthermore, non-bank financial service dominated low risk and return portfolios but as both risk and return increased, an increasing share of the portfolio was invested in the construction, wholesale and retail sectors. The authors note that the results are obtained from hypothetical combinations of industries over a specific historical sample time period. Another time period could have generated different results. Additionally, if affiliation between these industries were permitted, actual results could be better if there are significant economies of scale and scope but the results could also be worse if the combinations resulted in significant diseconomies. Furthermore, the results are specific only to the US. The results might vary for different countries due to differences in bank

regulation, natural resource endowments, industry scale, and relative labor costs. Finally, as globalization continues to redistribute production around the globe the potential advantage of forming efficient portfolios of banking and commercial firms cross borders needs to be explored.

The potential benefits and costs associated with merging banking and commerce are quite complex, covering such issues as potential economies (diseconomies) of scale and scope. A well known result in finance is that combining assets in an efficient portfolio allows an investor to obtain the same returns at lower risk (or higher returns for the same risk) in comparison to holding an individual asset. There is no ex ante reason to believe this result would not hold for combinations of banking and non-financial firms. Three potential advantages of such affiliations are identified: 1) the combined firm would constitute a more diversified portfolio of activities that could produce higher returns for the same level of risk, or the same returns for a lower level of risk, or possibly both higher returns and lower risk; 2) the combined firm might benefit from economies-of-scale if its production costs decrease with size; and 3) the combined firms might benefit from economies-of-scope if production costs decrease as the firm is involved in a broader set of financial and non-financial activities. For example, one area where economies of scale may likely be generated by the integration of banking and commerce is in the area of risk management, and in particular, the creation and use of financial derivatives. In another recent paper, Wall, Reichert, and Liang (2008) note the potential for diseconomies of scale and scope. For example, the "diversification discount" literature suggests that diseconomies of scale for conglomerate often exists due to inefficient internal capital markets. However, the authors argue that in practice one should expect the benefits of portfolio diversification and economies-of-scale and scope to dominate any diseconomies, as the firm's shareholders would have an incentive to undo any combinations that reduce shareholder value.

Furthermore, Wall, Reichert, and Liang (2008) consider two public policy concerns associated with allowing banks and commercial firms to affiliate. First, the banking affiliate could potentially use its privileged position in the financial system to provide "unfair" benefits to its commercial affiliates. The authors discuss the case where the bank affiliate might be tempted to either restrict credit or charge above markets rates to the competitors of its commercial affiliates. But this raises an even larger issue relating to the degree of com-

petition in banking markets in general. That is, if financial markets are reasonably competitive, banks will have few opportunities to exploit their commercial borrowers. Alternatively, if the markets are not competitive, borrowers may end up paying higher rates regardless of whether the bank has a commercial affiliate or not.

The second public policy concern is the risk that the federal safety net for banks could be extended to cover their commercial affiliates. The federal safety net provides banks with deposit insurance, access to the discount window and the payment system. The concern regarding the safety net implications of affiliation usually revolves around the risk that resources would be siphoned from the bank in support of a failing commercial affiliate. The practical policy issue is whether various mechanisms intended to limit the bank's exposure, such as legal fire walls implemented within the structure of a financial services holding company, would ultimately prove effective in the case of the financial collapse of a non-financial affiliate. Wall, Reichert, and Liang argue that this focus on draining bank resources is too narrow, since it ignores the potential for the commercial firm's resources to be used to assist a weak banking affiliate. In this case, affiliation could possibly reduce the overall risk to the safety net. In another respect, the bank could possibly be damaged by the failure of a commercial affiliate to perform certain operational services for its banking affiliates, such as the provision of critical information and data processing services, or failure to performance on certain financial contracts, etc. To illustrate, Walter (2003) discusses two cases where banks failed due to failed transactions with non-bank affiliates. On the other hand, Haubrich and Santos (2005) show that commercial operations could also enable banks to reduce their losses on defaulted loans if their commercial operations helped banks dispose of collateral they acquire as a result of the loan default process. Wall, Reichert, and Liang (2008) argue that these operational links are likely to be most important in those cases where affiliation related economies of scale and scope are greatest, and hence, the operational and contractual ties are the strongest. Finally, the authors conclude that certain highly selective combinations of banking and commerce will likely yield net gains to their owners, but that large conglomerates combining substantial banking and commercial interests are unlikely at least for the US. The current situation in various developed countries is discussed below.

The Institute of International Bankers (2009) finds substantial cross-country differences in the restrictions on banking and commerce. Further, these restrictions often differ in important ways depending upon whether it is the bank holding equity in a commercial firm or a commercial firm holding equity in a bank. The Institute of International Bankers' (2009) survey

shows banks' authority to own directly or indirectly through a holding company are typically restricted by either limits expressed as a fraction of bank capital or limits as a percentage of the industrial firm's capital. France and Germany both limit banks' investment in individual industrial firms to 15% of the bank's capital and banks' investment in all industrial firms to 60% of capital. Canada and Japan both limit ownership as a percentage of the industrial firm's equity, with Japan imposing a 5% limit on direct ownership (15% including the bank's subsidiaries) and Canada imposing a 10% limit. The United Kingdom permits such acquisitions subject to supervisory consultations. US rules generally limit bank ownership stakes to 5% of voting shares, but among the exceptions is the authority for financial holding companies to form merchant banking subsidiaries that have control relationships, but these investments are subject to some limitations.

Industrial firms are typically allowed to have ownership interest in a bank in other developed countries, but many countries require governmental approval for ownership stakes above specified threshold levels. The Institute of International Bankers (2009) describes the German rule as follows "Permitted, subject to regulatory consent based on the suitability of the shareholder." In addition to limits based on the size of the industrial firm, Japan requires regulatory approval for ownership stakes in excess of 20%. The United States permits "noncontrolling investment up to 25% of the voting shares."

Germany and Japan were often cited as examples of countries where the banks have played an important role in the governance of many corporations. Japanese groups called "*keiretsus*" relied on cross-ownership between the various members of the group. The largest bank, or main bank, of the group played an important role because of its ability to supply loans to other members of the group, not because it owned a controlling interest in them. German banks primary source of control is their voting power over shares held by their trust departments for other investors. Investors typically give their proxy to the bank, allowing the bank to vote the shares. Thus, the nature of the ownership interest and control in both Germany and Japan is very different from that typically observed in US banking organizations, where the parent organization (typically a bank holding company) directly owns a controlling interest in its affiliated firms. Moreover, doubts about the merits of the close relationship between banks and corporations in Germany and Japan have emerged. Peek and Rosengren (2005) document

the role of close ties in the continued financing of financially failing firms in Japan. Enriques and Volpi (2007) discuss various corporate governance reforms in Germany, some of which were intended to weaken the role of German banks in corporate governance.

2. Data

The data used in the earlier two papers by Wall, Reichert, and Liang are obtained from the IRS corporate income tax returns for the period of 1994-2004 by industrial SIC codes. The following ten industries are included:

♦ agriculture, forestry, fishing, and hunting (AFFH);
♦ mining;
♦ construction;
♦ manufacturing;
♦ transportation;
♦ wholesale trade;
♦ retail trade;
♦ non-bank financial services, which excludes bank holding companies;
♦ bank holding companies (BHCs); and
♦ non-financial services.

Data for the current paper are provided by OSIRIS, which is a comprehensive database of financial information, ratings, earning estimates, stock data and news on global publicly listed companies (See https://osiris.bvdep.com/ for details). Based upon the extent of data provided, the following six countries are included in the analysis: US, Canada, UK, Germany, France, and Japan. The largest number of firms are generally found in the manufacturing, non-financial services and non-bank financial services sectors, with the exception of Canada where mining dominates, and Japan where retail is relatively large. The current study, as well as the past studies, use return on equity (ROE) as the measure of industry performance. The ROEs for each industry are the average returns of individual public companies, weighted by their equity positions. The earlier studies used data for US firms and bank holding companies (BHCs). To maintain comparability the same ten industry categories are included in the analysis, except that the current study uses commercial banks (SIC: 602) to represent the banking sector, due to limited data for BHCs (SIC: 6712) for the foreign countries. The number of banking companies reported in the OSIRIS data base for the latest year, 2007, is as follows: US (675), Canada (13), UK (12), Germany (17), France (10), and Japan (100).

3. Empirical results

3.1. Country specific optimal portfolios. Table 1, Panels A-F (see Appendix A) presents the summary statistics for each of ten different industries for the US, Canada, UK, Germany, France, and Japan, respectively. The top portion of each country-specific panel

reports the mean and standard deviation for ROE over the sample period as well as the correlations with commercial banking. In addition, the ranking of each industry is provided where industries with a larger mean ROE are ranked higher, while industries with a lower standard deviation and low positive or negative correlation are ranked higher too. The reminder of five panels indicates the mean ROE, standard deviation, and coefficient of variation (CV) for various mean-variance efficient portfolios, labeled A, B, C, etc. The composition of each of these efficient portfolios is presented at the bottom of the panel. Examining the US results reported in Panel A, portfolios A, B, and C, which include some degree of commercial activity, all have slightly lower mean ROEs but substantially lower standard deviations and coefficients of variation compared to the results with no commercial investments reported in portfolio D. The implication is that US commercial banks diversifying into the retail sector over the sample period would have slightly lowered their average returns but would have substantially reduced their portfolio risk. For example, by investing 25.1% of their assets in retail (portfolio C) the average ROE declines from 14.8% to 14.5% with a significant reduction in the portfolio's CV from 15.4% to 11.6% (a 25% reduction in relative terms). A similar result is found in Panel B for Canada and somewhat comparable results for the UK in Panel C. In the case of Canada, comparing portfolio E versus no diversification (portfolio G), by investing 25.8% of their assets in retail and 14.7% in the AFFH sector, the portfolio ROE declines slightly from 14.9% to 14.0%. At the same time, this level of diversification generates a 28% relative reduction in our measure of relative risk as the CV declines from 19.2% to 13.9%. For the UK, comparing portfolio C versus no diversification (portfolio F), by investing 16.0% of their assets in retail and 15.7% in the construction sector, the average ROE declines from 16.9% to 15.1% (a 11% relative decline). At the same time, a dramatic 46% reduction in the CV takes place, falling from 19.5% to 10.6%.

As indicated in Panel D for Germany and Panel F for Japan, commercial in both countries did poorly with an average ROE of 3.87% and -10.0%, respectively. Hence, commercial banking never appears in any of the efficient portfolios. As illustrated in Panel E, commercial banks in France earned a respectable mean ROE of 10.2% but once again commercial banking never appears in any of the efficient portfolios. This is probably due to the relatively large positive ROE correlations between banking and the other industries. Overall, the results are consistent with earlier research where portfolio gains are relegated to a few sectors such as retail and construction. Thus, bank management, contemplating diversification into the commercial sector, must be selective as to what specific industries they choose, while corporate management interested in moving into banking might need to settle for somewhat lower returns to achieve a substantial reduction in risk. This conclusion holds for banks and corporations in both the US and at least two other developed countries, Canada and the UK.

3.2. Optimal global portfolio. In addition to estimating optimal industry portfolios within each country we perform a cross-border analysis by forming hypothetical portfolios of high profit industries across these same six countries. More specifically, we identify the most profitable industry across each of the countries during our 14 year data period in Table 2 (see Appendix B).

Thus, Canada, US, Germany, and Japan are represented by one industry each: AFFH, construction, transportation, non-bank financial services, respectively; while France is represented by two industries: mining and retail; and the UK by four industries: manufacturing, wholesale, non-financial services, and banking.

The following portfolio analysis in Table 3 (see Appendix C) indicates how an international conglomerate could form an efficient portfolio of subsidiaries operating across borders. Table 3 reports the results of five efficient global portfolios. Looking at the middle three portfolios (B, C, and D) where the mean ROE ranges from 15% to 17%, the general allocation results are relatively stable with significant assets invested in four major country-sectors: mining and retail in France, non-bank financial services in Japan, and commercial banking in the UK. For the middle portfolio C with a mean ROE of 16%, the optimal allocations are as follows: mining (21.6%) and retail (29.1%) in France, non-bank financial services (16.2%) in Japan, and commercial banking (29.0%) in the UK. It should be noted that the portion of assets invested in the French retail sector declines dramatically from 48.8% to 3.6% as the mean ROE increases, while the percent invested in mining rises from 14.6% to 30.6%. In addition, the percentage of the optimal portfolio invested in UK commercial banking dramatically rises from 13.8% to 43.2%, as the mean ROE increases from 15% to 17%. The proportion of assets invested in the non-bank financial sector in Japan is relatively constant, increasing from 13.9% to 20.3%. Thus, the cross-border integration of banking and commerce appears to generate high levels of ROE. On the other hand, this improvement generates a significant increase in risk as the coefficient of variation for ROE dramatically increases. For example, moving from portfolio B with a ROE of 15% to portfolio D with a ROE of 17% represents

a 13% relative increase in return. But this improvement is accompanied by an 86% relative increase in risk as the portfolio CV increases from 4.9% to 9.1%.

The UK is an interesting case as commercial banking in the UK represents a significant proportion of assets in the optimal international portfolio. By themselves, commercial banks in the UK achieved an average ROE of approximately 17% during the 1994-2007 time period. As mentioned previously, UK banks could have maintained a 17% ROE by diversifying domestically into retail trade and construction with a 34% reduction in risk as the CV declines from 19.5% to 12.9%. On the other hand, if the UK banks had pursued an international commercial diversification strategy, they could have maintain a 17% ROE by diversifying into mining in France (30.6%), and non-bank financial services in Japan, with a 53% reduction in risk from 19.5% to 9.10%.

Conclusion

Using data supplied by OSIRIS for the 1994-2007 period, the formation of mean-variance efficient portfolios of bank and commercial firms suggest that the US, Canada and the UK commercial banks located in these countries would have reduced their risk substantially and their average returns vary little by diversifying into the retail sector. For example, by investing 25.1% of their assets in the retail sector the average ROE for US banks declines slightly from 14.8% to 14.5%, with a 25% relative reduction in risk as measured by the CV from 15.4% to 11.6%. In the case of Canada, by investing 25.8% of their assets in retail and 14.7% in the AFFH sector, commercial banks would find their ROE declines slightly while their CV is reduced by 28% from 19.2% to 13.9%. For the UK, by investing 16.0% of their assets in retail and 15.7% in the construction sector, commercial banks average ROE declines noticeably from 16.9% to 15.1%. At the same time, an even more dramatic 46% reduction in risk takes place, with the CV falling from 19.5%

to 10.6%. In Germany and Japan the banks did very poorly over the 1994-2007 period with an average ROE of 3.87% and -10.0%, respectively. Hence, banking never appears in any of the efficient portfolios. In France commercial banks earned a mean ROE of 10.2% but also never appear in any of the efficient portfolios.

The results of forming global portfolios where the most profitable industries in various country are potential candidates for inclusion in an efficient portfolio are as follows. The general allocation results are relatively stable with significant assets invested in four major country-sectors: mining and retail in France, non-bank financial services in Japan, and commercial banking in the UK. For a medium profit global portfolio with a mean ROE of 16%, the optimal cross-border asset allocations are as follows: mining (21.6%) and retail (29.1%) in France, non-bank financial services (16.2%) in Japan, and commercial banking (29.0%) in the UK. Thus, the cross-border integration of banking and commerce appears to generate significant returns. On the other hand, these positive results imply a significant level of risk as the coefficient of variation for ROE dramatically increases. For example, moving from an international portfolio with an ROE of 15% to a portfolio with an ROE of 17% represents a 13% relative increase in return. But this improvement is accompanied by an 86% relative increase in risk measured by the portfolio's CV from 4.9% to 9.1%. Thus, both bank and corporate management must recognize that cross-border operations, while profitable, may entail a significant increase in risk. At the same time, international diversification may generate significant reductions in risk. For example, commercial banks in the UK achieved an average ROE of approximately 17% during the study period. UK banks could have maintained this ROE by diversifying domestically into retail trade and construction with a 34% reduction in risk. On the other hand, if the UK banks had pursued an international commercial diversification strategy, they could have maintain the same ROE of 17% by diversifying into mining in France (30.6%), and non-bank financial services in Japan, with an even larger 53% reduction in risk (19.5 to 9.10).

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Appendix A.

Table 1. Portfolio analysis by country

Panel A: US – industry returns and correlation with commercial banks							
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	Mean	Rank	STD	Rank
AFFH	6.80	8	5.65	5	83.15	7	-0.37	1
Mining	10.42	6	6.77	7	64.99	5	-0.27	2
Construction	12.23	4	10.47	10	85.62	8	0.62	9
Manufacturing	13.74	2	5.14	4	37.44	4	0.28	7
Transportation	3.27	10	6.91	8	211.54	10	0.10	5
Wholesale trade	11.37	5	2.56	3	22.46	3	0.10	6
Retail trade	13.52	3	2.13	1	15.71	2	-0.21	3
Non-bank financial services	5.29	9	9.81	9	185.48	9	0.34	8
Non-financial services	8.59	7	5.98	6	69.68	6	0.05	4
Commercial banks	14.83	1	2.28	2	15.38	1	1.00	10
Efficient risk and return portfolios	Portfolios							
ROE analysis	A	B	C	D				
Mean ROE (%)	13.98	14.06	14.50	14.83				
STD ROE (%)	1.36	1.36	1.68	2.28				
CV (%)	9.71	9.67	11.58	15.38				
Industry	Portfolios allocation (%)							
AFFH	0.00	0.00	0.00	0.00				
Mining	3.77	3.39	0.00	0.00				
Construction	0.00	0.00	0.00	0.00				
Manufacturing	0.00	0.00	0.00	0.00				
Transportation	0.00	0.00	0.00	0.00				
Wholesale trade	2.02	0.00	0.00	0.00				
Retail trade	46.86	47.50	25.14	0.00				
Non-bank financial services	0.00	0.00	0.00	0.00				
Non-financial services	0.00	0.00	0.00	0.00				
Commercial banks	47.36	49.12	74.86	100.00				

Panel B: Canada – industry returns and correlation with commercial banks							
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	%	Rank	with CBs	Rank
AFFH	13.13	2	4.32	3	32.90	3	-0.21	1
Mining	-1.22	9	19.05	8	-1557.24	9	0.32	7
Construction	0.84	7	20.53	9	2449.76	7	0.33	8
Manufacturing	-5.79	10	27.94	10	-482.47	8	0.08	4
Transportation	4.05	6	17.34	7	427.75	6	0.28	6
Wholesale trade	7.83	5	4.63	4	59.05	4	0.42	9
Retail trade	12.54	3	2.80	1	22.35	2	0.01	3
Non-bank financial services	10.97	4	8.13	5	74.13	5	-0.13	2
Non-financial services	-0.67	8	11.26	6	-1675.89	10	0.26	5
Commercial banks	14.86	1	2.85	2	19.16	1	1.00	10
Efficient risk and return portfolios	Portfolios							
ROE analysis	A	B	C	D	E	F	G	
Mean ROE (%)	12.17	12.60	13.08	13.50	14.00	14.50	14.86	
STD ROE (%)	1.61	1.63	1.67	1.75	1.94	2.39	2.85	
CV (%)	13.27	12.92	12.78	12.96	13.88	16.44	19.16	
Industry	Portfolios allocation (%)							
AFFH	13.97	14.46	15.03	15.54	14.67	11.30	0.00	
Mining	0.71	0.36	0.00	0.00	0.00	0.00	0.00	

Panel B (cont.): Canada – industry returns and correlation with commercial banks							
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	%	Rank	with CBs	Rank
Construction	0.61	0.36	0.05	0.00	0.00	0.00	0.00	
Manufacturing	0.33	0.11	0.00	0.00	0.00	0.00	0.00	
Transportation	0.86	0.61	0.29	0.00	0.00	0.00	0.00	
Wholesale trade	12.12	10.24	7.85	2.78	0.00	0.00	0.00	
Retail trade	33.23	33.68	34.13	33.66	25.82	7.04	0.00	
Non-bank financial services	3.94	3.77	3.55	2.96	0.23	0.00	0.00	
Non-financial services	2.03	1.08	0.00	0.00	0.00	0.00	0.00	
Commercial banks	32.21	35.33	39.10	45.05	59.28	81.67	100.00	

Panel C: UK – industry returns and correlation with commercial banks							
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	%	Rank	with CBs	Rank
AFFH	6.63	9	2.28	2	34.37	4	-0.22	4
Mining	11.49	6	12.35	10	107.51	8	-0.59	2
Construction	10.74	7	7.58	5	70.56	6	-0.66	1
Manufacturing	17.55	1	4.85	4	27.62	3	-0.33	3
Transportation	6.66	8	11.77	9	176.77	10	0.64	7
Wholesale trade	15.59	3	8.83	7	56.65	5	-0.07	5
Retail trade	13.31	4	2.17	1	16.27	1	0.67	9
Non-bank financial services	6.38	10	7.69	6	120.48	9	0.07	6
Non-financial services	12.15	5	9.57	8	78.75	7	0.69	8
Commercial banks	16.92	2	3.30	3	19.53	2	1.00	10
Efficient risk and return portfolios	Portfolios							
ROE analysis	A	B	C	D	E	F		
Mean ROE (%)	12.04	13.02	15.08	17.03	17.55	16.92		
STD ROE (%)	1.21	1.26	1.60	2.20	4.85	3.30		
CV (%)	10.05	9.65	10.59	12.90	27.62	19.53		
Industry	Portfolios allocation (%)							
AFFH	29.93	19.59	0.00	0.00	0.00	0.00		
Mining	1.91	3.36	5.67	0.00	0.00	0.00		
Construction	11.34	13.04	15.71	1.82	0.00	0.00		
Manufacturing	0.00	0.00	2.48	35.25	100.00	0.00		
Transportation	0.00	0.00	0.00	0.00	0.00	0.00		
Wholesale trade	1.68	1.08	0.00	0.00	0.00	0.00		
Retail trade	26.82	24.39	15.99	0.00	0.00	0.00		
Non-bank financial services	0.00	0.00	0.00	0.00	0.00	0.00		
Non-financial services	0.00	0.00	0.00	0.00	0.00	0.00		
Commercial banks	28.32	38.54	60.15	62.94	0.00	100.00		

Panel D: Germany – industry return and correlation with commercial banks							
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	%	Rank	with CBs	Rank
AFFH	11.84	1	2.14	1	18.06	1	-0.41	1
Mining	10.25	5	5.55	6	54.20	5	-0.03	3
Construction	-1.95	10	14.93	10	-765.15	10	-0.06	2
Manufacturing	10.27	4	3.67	2	35.70	3	0.46	5
Transportation	7.69	7	10.40	8	135.29	8	0.90	9
Wholesale trade	11.76	2	4.14	3	35.20	2	0.54	6
Retail trade	7.59	8	4.86	4	63.99	6	0.12	4
Non-bank financial services	9.99	6	5.40	5	54.03	4	0.55	7
Non-financial services	11.31	3	8.93	7	78.97	7	0.76	8
Commercial banks	3.87	9	11.86	9	306.80	9	1.00	10

Panel D (cont.): Germany – industry return and correlation with commercial banks							
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	%	Rank	with CBs	Rank
Efficient risk and return portfolios	Portfolios							
ROE analysis	A	B	C	D				
Mean ROE (%)	10.94	11.05	11.84	3.87				
STD ROE (%)	1.38	1.38	2.14	11.86				
CV (%)	12.58	12.48	18.06	306.80				
Industry	Portfolios allocation (%)							
AFFH	71.91	72.69	100.00	0.00				
Mining	0.00	0.00	0.00	0.00				
Construction	3.55	3.17	0.00	0.00				
Manufacturing	0.00	0.00	0.00	0.00				
Transportation	6.48	5.99	0.00	0.00				
Wholesale trade	14.84	15.55	0.00	0.00				
Retail trade	2.92	1.95	0.00	0.00				
Non-bank financial services	0.00	0.00	0.00	0.00				
Non-financial services	0.31	0.64	0.00	0.00				
Commercial banks	0.00	0.00	0.00	100.00				

Panel E: France – industry return and correlation with commercial banks								
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	%	Rank	with CBs	Rank
AFFH	8.32	8	10.45	9	125.56	9	-0.39	1
Mining	16.70	1	9.57	7	57.30	6	0.86	9
Construction	10.66	4	10.34	8	97.01	8	0.70	8
Manufacturing	10.47	5	2.34	2	22.34	2	0.37	6
Transportation	0.72	9	22.20	10	3083.06	10	0.11	4
Wholesale trade	11.46	3	3.43	4	29.91	3	0.14	5
Retail trade	13.61	2	1.80	1	13.23	1	0.09	3
Non-bank financial services	8.41	7	2.66	3	31.63	4	0.51	7
Non-financial services	6.76	10	6.16	6	91.01	7	-0.06	2
Commercial banks	10.24	6	3.58	5	34.97	5	1.00	10
Efficient risk and return portfolios	Portfolios							
ROE analysis	A	B	C	D	E	F	G	
Mean ROE (%)	12.69	13.01	14.01	15.00	16.00	16.70	10.24	
STD ROE (%)	0.87	0.93	2.22	4.64	7.51	9.57	3.58	
CV (%)	6.83	7.14	15.84	30.95	46.92	57.30	34.97	
Industry	Portfolios allocation (%)							
AFFH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Mining	0.00	0.00	13.03	45.03	77.34	100.00	0.00	
Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Manufacturing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Transportation	0.00	0.08	0.00	0.00	0.00	0.00	0.00	
Wholesale trade	27.94	27.23	0.00	0.00	0.00	0.00	0.00	
Retail trade	66.99	72.69	86.97	54.97	22.66	0.00	0.00	
Non-bank financial services	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Non-financial services	4.40	0.00	0.00	0.00	0.00	0.00	0.00	
Commercial banks	0.00	0.00	0.00	0.00	0.00	0.00	100.00	

Panel F: Japan – industry return and correlation with commercial banks								
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	%	Rank	with CBs	Rank
AFFH	4.045	6	0.87	1	21.64	1	0.60	6
Mining	5.05	4	5.08	7	100.49	6	0.72	8

Panel F (cont.): Japan – industry return and correlation with commercial banks							
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	%	Rank	with CBs	Rank
Construction	-0.11	9	5.32	8	-5014.15	10	0.725	9
Manufacturing	6.46	2	4.85	5	75.15	5	0.41	4
Transportation	6.11	3	2.43	2	39.73	2	0.48	5
Wholesale trade	4.37	5	4.85	6	111.20	8	0.62	7
Retail trade	3.92	8	4.10	4	104.51	7	0.18	2
Non-bank financial services	18.43	1	9.96	9	54.02	3	-0.21	1
Non-financial services	4.40	7	2.46	3	56.05	4	0.20	3
Commercial banks	-10.01	10	15.82	10	-157.93	9	1	10
Efficient risk and return portfolios	Portfolios							
ROE analysis	A	B	C	D	E	F	G	H
Mean ROE (%)	5.09	7.08	9.07	11.00	13.01	15.03	17.03	-10.01
STD ROE (%)	0.67	0.90	1.85	3.28	4.98	6.78	8.63	15.82
CV (%)	13.19	12.63	20.35	29.85	38.30	45.14	50.68	-157.93
Industry	Portfolios allocation (%)							
AFFH	57.30	8.03	0.00	0.00	0.00	0.00	0.00	0.00
Mining	0.00	0.00	1.67	8.17	10.92	13.53	3.54	0.00
Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Manufacturing	3.51	10.45	10.26	9.06	11.22	13.30	7.75	0.00
Transportation	0.00	7.12	31.61	42.63	21.25	0.00	0.00	0.00
Wholesale trade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Retail trade	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Non-bank financial services	5.95	16.95	27.85	40.14	56.61	73.17	88.70	0.00
Non-financial services	31.36	57.45	28.61	0.00	0.00	0.00	0.00	0.00
Commercial banks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100.00

Appendix B.

Table 2. Countries with the maximum mean ROE by industry (1994-2007)

Industry: Country	Mean ROE (%)
AFFH: Canada	13.13
Mining: France	16.7
Construction: US	12.23
Manufacturing: UK	17.55
Transportation: Germany	7.69
Wholesale: UK	15.59
Retail: France	13.61
Non-bank financial services: Japan	18.43
Non-financial services: UK	12.15
Commercial banking: UK	16.2

Appendix C.

Table 3. Portfolios of most profitable industries by country

Industry return and correlation with commercial banks (MNES)							
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	%	Rank	with CBs	Rank
AFFH: Canada	13.13	7	4.32	3	32.90	4	0.45	7
Mining: France	16.70	3	9.57	7	57.30	7	-0.71	1
Construction: US	12.23	9	10.47	10	85.62	9	0.23	5
Manu: UK	17.55	2	4.85	4	27.62	3	-0.33	2
Transportation: Germany	7.69	10	10.40	9	135.29	10	2.28	6
Wholesale: UK	15.59	5	8.83	5	56.65	6	-0.07	4
Retail: France	13.61	6	1.80	1	13.23	1	-0.34	3
Non-bank financial services: Japan	18.43	1	9.96	8	54.02	5	0.69	9

Table 3(cont.). Portfolios of most profitable industries by country

Industry return and correlation with commercial banks (MNES)							
	ROE(%)		ROE(%)		ROE CV		Correlation	
Industry	Mean	Rank	STD	Rank	%	Rank	with CBs	Rank
Service: UK	12.15	8	9.57	6	78.75	8	0.69	8
Bank(602): UK	16.20	4	3.30	2	20.40	2	1.00	10
Efficient risk and return portfolios	Portfolios							
ROE analysis	A	B	C	D	E			
Mean ROE (%)	14.0	15.0	16.0	17.0	18.0			
STD ROE (%)	0.58	0.74	1.03	1.55	4.24			
CV (%)	4.11	4.93	6.44	9.10	23.52			
Industry	Portfolios allocation (%)							
AFFH: Canada	0.00	0.00	0.00	0.00	0.00			
Mining: France	7.88	14.57	21.61	30.57	0.00			
Construction: US	5.62	3.86	1.31	0.00	0.00			
Manu:UK	0.00	0.00	0.00	0.00	48.13			
Transportation: Germany	6.49	2.11	0.00	0.00	0.00			
Wholesale: UK	2.92	2.93	2.72	2.38	0.00			
Retail: France	65.69	48.84	29.08	3.63	0.00			
Financial: Japan	11.40	13.94	16.21	20.25	0.00			
Services: UK	0.00	0.00	0.00	0.00	51.87			
Commercial Banking: UK	0.00	13.76	29.06	43.17	0.00			