Is active management of mandatory pension funds in Croatia creating value for second pillar fund members?

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Abstract

This paper analyses Croatian mandatory pension funds' investment returns during the 2005-2014 period using performance attribution methodology. Results from active investment management are compared to a long-term policy return. Such analysis is essential to shed light on the contribution of active portfolio management in the second pillar pension scheme. Evidence suggests that in the period analysed portfolio managers have added value through active management decisions. In addition, we determined the sources of portfolio return by breaking down active return into policy, tactical asset allocation and security selection effect.

Keywords: pension funds, performance attribution, policy return, active return, allocation effect, security selection effect

1 INTRODUCTION

The purpose of this paper is to determine whether mandatory pension fund managers in Croatia have added or destroyed value for the second pillar pension fund members during the 2005-2014 period. We have based our analysis on performance attribution methodology. In the first part of the paper we present a short overview of the second pillar pension system in Croatia. We then describe the methodological framework used in the study and present the concerns and difficulties we were faced with when applying it to the Croatian mandatory pension funds. Finally, we present the results of our study: evidence suggests that active management has added around 77 basis points of return per year during the period we analysed.

2 OVERVIEW OF THE PENSION SYSTEM IN CROATIA

In 2002 a pension system reform in Croatia introduced second and third pillar privately managed mandatory and voluntary pension funds to complement the existing government-sponsored system based on the principle of solidarity. The third pillar of the system consists of voluntary pension funds with purely voluntary contributions and is not analysed in this paper. At the same time, mandatory employees' contributions to the existing first pillar "pay as you go" system were partially redirected to second pillar "defined contribution" pension funds where individual pension assets have gradually been built up and invested in capital markets. The market consists of four mandatory pension fund management companies. Until 2014 each of these companies managed one pension fund and all the participants were assuming the same risk profile. A proxy life-cycle model introduced in 2014 saw the creation of three mandatory pension fund categories with different risk profiles: models A, B and C. Each of the management companies must offer all three models to the system participants. Model B funds, in terms of investment strategy and limits as well as assets under management, are clearly the successors of the funds created in 2002. We assumed this when constructing the data sets for our study.

Our study concentrates on the performance results of mandatory pension funds (B model funds after July 2014) during the 2005-2014 period. During that decade assets under management grew from 8 billion HRK to 65 billion HRK (8.5 bln EUR). Mandatory pension funds had 1.7 million members at the end of 2014. Their assets represented almost 20% of the GDP of Croatia.

3 FRAMEWORK

The methodological framework used in this paper is based on that presented in the study by Brinson, Hood and Beebower (1986): actual returns of the pension funds are compared with a "benchmark" return reflecting the investment policy. The investment policy identifies the long-term asset allocation plan, including normal asset classes and normal weights. Hoernemann, Junkans and Zarate (2005:26) define an investment policy as "the basic long-term mix of assets that is most likely to help meet the investor's long-term investment performance and risk objectives". An investment policy is sometimes also referred to as normal, long-term or strategic asset allocation. This framework identifies three sources of return in the investment management process: investment policy return, market timing and security selection. "Timing is the strategic under or overweighting of an asset class relative to its normal weight, for purposes of return enhancement and/or risk reduction" (Brinson, Hood and Beebower, 1986:40). Market timing is also referred to as "tactical asset allocation" in Hoernemann, Junkans and Zarate (2005). "Security selection is the active selection of investments within an asset class" (Brinson, Hood and Beebower, 1986:40). Morningstar's Methodology Paper (2011) states that the allocation effect as presented in Brinson, Hood and Beebower (1986) was not acceptable in its original form. We have, therefore, used, in equation 3, the formula presented by Brinson and Fachler (1985), because, according to Morningstar's Methodology Paper (2011), it is in line with contemporary approaches to component-level attribution and is not in conflict with the formula presented in Brinson, Hood and Beebower (1986) because their results match at the portfolio level.

In order to calculate the benchmark return, R_b, the actual portfolio return, R_p, the allocation effect, *All*, and selection effect, *Sel*, for any given period, we need:

(a) the normal (or benchmark) weights for *n* asset classes *i*: $w_{b,i}$
(b) the actual weights of all asset classes in the funds: $w_{p,i}$
(c) the benchmark returns assigned to each asset class: $r_{b,i}$
(d) the actual return of each asset class in the fund portfolios: $r_{p,i}$.

Equations (1) to (4) are used to calculate R_p, R_b, *All* and *Sel*:

$$R_b = \sum_{i=1}^{n} w_{b,i} * r_{b,i} \quad (1)$$

$$R_p = \sum_{i=1}^{n} w_{p,i} * r_{p,i} \quad (2)$$

$$All = \sum_{i=1}^{n} \left(w_{p,i} - w_{b,i} \right) * \left(r_{b,i} - R_b \right) \tag{3}$$

$$Sel = \sum_{i=1}^{n} \left(r_{p,i} - r_{b,i} \right) * w_{p,i} \tag{4}$$

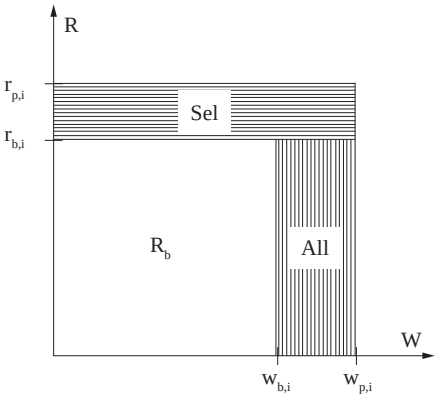
The decomposition of returns as shown in equation (5) can easily be demonstrated from equations (1) to (4).

$$R_p = R_b + All + Sel \tag{5}$$

This simple framework is illustrated in figure 1. The area encompassing the three rectangles R_b, *Sel* and *All*, represents the total return of the portfolio, R_p. R_b is the policy return – the return that would have been achieved by the fund managers if they invested passively in the benchmark portfolio respecting the defined long-term weights of each asset class. The *All* rectangle represents the portion of portfolio return resulting from active allocation decisions – the variation in actual weights of asset classes compared with the normal weights. The *Sel* rectangle represents the portion of portfolio return resulting from active security selection decisions – divergence in selection of individual securities and/or their weight in actual portfolios compared to the benchmark portfolios.

FIGURE 1

The decomposition of portfolio return into policy return, selection and allocation effects



In Brinson, Hood and Beebower (1986) the active return is broken down into allocation, selection and interaction effects. The interaction effect is a small part of the active return that is simultaneously the result of allocation and selection decisions. In figure 1, it would have been represented by the rectangle $(r_{p,i} - r_{b,i})*(w_{p,i} - w_{b,i})$ where *Sel* would have been $(r_{p,i} - r_{b,i})*w_{b,i}$. For the sake of transparency, we would like to point out that results for the selection effect calculated in this paper encompass both the selection and the interaction effect from the original Brinson, Hood and Beebower study and corresponds to equation (4). This is due to the fact that we had to calculate *Sel* as a residual value due to lack of data (see equation 6).

4 THE STUDY

In our study we used monthly data for the ten years period beginning in January 2005 and ending in December 2014. All four mandatory pension funds active in Croatia were included. Data sets for actual portfolio weights and returns were constructed using the Croatian Financial Services Supervisory Agency's (HANFA) monthly reports, pension funds' annual financial statements and the HANFA internal database. When calculating average returns and portfolio structure data at the industry level we used simple arithmetic means. We believe that using asset weighted averaging would have distorted the results in favour of larger pension funds.

In order to define normal asset classes and weights for our benchmark portfolio we analysed the historical structure of the portfolios of each of the four pension funds. Five asset classes were selected for our policy strategy: Croatian government bonds denominated in EUR or HRK, euro-zone government bonds, Croatian stocks, global stocks and cash equivalents. Policy weights were determined based on average holdings of the pension funds. As explained later, we also took into account actual limitations of the market. Finally, we defined proxies for the normal returns of asset classes in our benchmark portfolio. Table 1 summarizes the data collected for pension funds and the benchmark indices that we selected as proxies.

Table 1

Policy asset classes, summary of holdings for 4 pension funds and benchmark indices (%)

Asset class	Average	Minimum	Maximum	Standard deviation	Policy weights[a]	Benchmark index
Cro. gov. bonds	68.76	52.52	87.33	6.57	74.15 67.29	Crogov[b]
Euro. gov. bonds	1.43	0	10.65	2.30	1.15 1.26	Bloomberg/ EFFAS EUGATR Index
Cro. stocks	13.64	1.08	36.77	6.44	3.57 15.81	Crostock[b]
Global stocks	8.50	1.20	18.04	3.67	7.84 8.71	MSCI World NDDUWI Index
Cash equivalents	7.67	0.28	24.33	4.90	13.30 6.94	Cromm[b]

[a] *Top row: 2005-2006; bottom row: 2007-2014.*
[b] *Custom indices due to lack of adequate publicly available total return indices.*
Source: www.hanfa.hr and HANFA internal database.

Because data was not available for actual returns of individual asset classes, $r_{p,i}$, used in equation (2) and equation (4), we calculated actual returns for the funds' portfolios, R_p, by "grossing up" the net-of-fees monthly returns calculated from published

daily unit prices. The grossing-up of returns was calculated using data about management and depositary fees from the pension funds' annual financial statements. We used the formula presented in Bacon (2008, equation 2.31, p. 30). We believe that "before fees" returns are more appropriate for this analysis for at least two reasons: for the comparability between benchmark and pension fund returns and the comparability between pension funds themselves across the same or different time periods. The selection effect, *Sel*, also could not be calculated at the asset class level because we did not have $r_{p,i}$ data. We instead derived it from equation (5).

$$Sel = R_p - (R_b + All) \tag{6}$$

As already mentioned, our calculations were performed on monthly data. We geometrically linked monthly returns to obtain returns for longer periods. The selection and allocation effects were also calculated on a monthly basis. These effects are additive at a single period level. However, they can't simply be added or geometrically linked across multiple periods. In order to achieve additivity, we used the Cariño's logarithmic linking coefficient as demonstrated in Bacon (2008:191-194). The linking coefficient was applied to monthly asset-class level allocation effects and monthly total selection effects.

In our study we assumed that the benchmark portfolio was realigned every month with the long-term asset allocation mix. This means that the drifting of the "normal" weights due to different returns across asset classes was restricted to a one month period.

Before presenting the results of the study, we will focus on four issues that, in our view, are crucial to the interpretation of the results.

4.1 POLICY ASSET CLASSES

Investible asset classes are defined in article 125 of the Act on Mandatory Pension Funds (2014). These are, in a nutshell, central and local government bonds, corporate bonds, stocks, deposits and cash equivalents. Issuers must be from EU (including Croatia) or OECD countries. Exposure to these asset classes can also be achieved through investment in UCITS funds and derivative instruments. Alternative investment funds as defined by the EU Directive on Alternative Investment Fund Managers are allowed and could theoretically lead to exposure to alternative asset classes. Although the investment limits do not directly discriminate against geographical diversification of funds' assets, article 129 of the Act states, for B model funds, that at least 60% of the funds' assets must be traded in local currency. Earlier regulation prescribed mandatory investments in Croatian government bonds.

Analysis of actual asset allocations clearly showed that all four funds invested most of their assets in Croatian government bonds denominated in HRK or EUR (domestically issued or issued on international capital markets). Our first asset

class consists of these bonds. Euro-zone government bonds represent our second asset class. We hesitated to include them in our study because of their relatively low weight in most periods. However, we believe that they deserve to be represented as a particular asset class at least to highlight the "home bias" evident in fund managers' decisions. Thirdly, Croatian stocks represent a separate asset class because we detected a very clear "home bias" there too, despite the very small size and low liquidity of the market. The fourth asset class is global stocks. Unlike bonds, where investments were constrained to the euro, the four pension funds we analysed invested in stocks globally despite currency risk. Finally, the fifth asset class represented in our study is cash equivalent instruments. They appear mostly as a liquidity reserve position and are temporarily built up in advance of government bond issues. Cash equivalent instruments are exclusively domestic.

Other investments were also present in the funds' portfolios. However, we did not create a separate asset class for them. We rather allocated them to one of the above-defined five asset classes: particular UCITS funds and alternative funds were allocated depending on their individual investment policies, Croatian and foreign corporate and municipal bonds were respectively allocated to Croatian government and euro-zone government bonds. Alternative funds were mostly Croatian equity funds with insignificant amounts invested in real-estate and private equity funds. We therefore added them to the Croatian stocks asset class.

4.2 BENCHMARK INDICES

Choosing appropriate benchmark indices for local asset classes was a very difficult task because there are no publicly available total return indices covering the entire period. The Zagreb Stock Exchange started publishing its Crobex Total Return equity index only in February 2014. To overcome this, we first used data available for the Crobex index from 2005 to 2014 and "grossed it up" with an assumed evenly distributed annual dividend yield of 3%. However, this approximation proved to be inappropriate because according to article 69 of the Act on Mandatory and Voluntary Pension Funds (1999) pension funds were allowed to invest exclusively in the first quotation of the Zagreb Stock Exchange while the Crobex index also included stocks traded in lower segments of the market. Practically, this meant that we could not use the Crobex index to represent our normal asset class for the full period of the study because most of the stocks included in the Crobex index were not directly investible for pension funds. The ban on stocks out of the first quotation was lifted in 2007 with amendments to the Act on Mandatory and Voluntary Pension Funds (1999). More detailed implementation rules were given in article 4 of the Regulation on Additional Investment Criteria and Limits for Pension Funds in December 2007. In order to avoid inconsistencies, we decided to create a custom total return free float capitalisation weighted index including only the stocks in the first quotation for 2005 and 2006. From January 2007 we used the "grossed up" Crobex return, mostly because the assets under management of UCITS funds with exposure to local equity rose significantly and could be

used to achieve indirect exposure to the broader Crobex index. We named this blended index Crostock. Hence, our custom index for the first two years is very poorly diversified, just as were the domestic stock portfolios of pension funds. In 2005 it consisted of stocks of only five companies (Croatia osiguranje, Istraturist, Medika, Pliva and Podravka). INA and Viro were added to that list in 2006. Our custom index is dominated by Pliva until October 2006. It is also marked by the inclusion of INA late in 2006. The difference in total return between the original Crobex index (not including dividends) and our custom Crostock index is substantial, not only because of the effect of dividends. While the Crobex index increased by 11.61% (1.1% annually), the Crostock index had a total return of 84.56% (6.32% annually). The difference was most substantial in 2006 when the custom Crostock index outperformed the Crobex index by as much as 47.68 percentage points. This is because most of the stocks quoted on the first quotation of the Zagreb Stock Exchange posted impressive returns in 2006 and because the weights of the individual stocks within the index fluctuated wildly. Firstly, Pliva's free float decreased sharply after a takeover bid, leading to an increase in the weight of other companies' stocks. Secondly, the inception of INA into the first quotation of the Zagreb Stock Exchange led to a decrease in the weights of all other companies. Table 2 gives yearly returns of the Crobex and Crostock indices. Using the publicly available Crobex index in our study without any customization would have resulted in a much higher outperformance of pension funds compared to the investment policy return. It is interesting to note that the "grossed up" Crobex index, the use of which we abandoned, would have demonstrated a compound annual rate of return of only 4.27%, making it the worst performing asset class in the 2005-2014 period. From table 3 we can see that Croatian stocks have the highest standard deviation of monthly returns making them the riskiest asset class. The fact that using modified data for only 2 years out of 10 (2005 and 2006) added up 205 basis points annually to the return of the Croatian stocks asset class shows how delicate a task it is to define an adequate benchmark. This is obviously an important but unavoidable shortcoming of our study. A discussion on the merits of Croatian stocks in pension funds' portfolios is beyond the scope of this paper.

A local asset management company calculated and published on Bloomberg a total return, market value weighted, Croatian government bond index for EUR and HRK denominated bonds, called CROBOND. This index included Eurobonds denominated in EUR, local bonds traded in HRK but linked to the EUR ("currency clause" bonds) and pure HRK bonds. Such an index was, in our opinion, a good representative of the pension funds' investment policies. Unfortunately, the CROBOND index (Bloomberg ticker ZBIBOND Index) covers only the period until September 2013. The Zagreb Stock Exchange started publishing a total return bond index in December 2011. We did not use it to construct our custom index because it does not include Croatian Eurobond issues. To complete our data set from September 2013 to December 2014 we used data on all Croatian government bonds issues over the period of our analysis, provided to us by one of the

pension fund management companies. We tailored it to our needs by including only HRK and EUR denominated bonds (including "currency clause" bonds) and excluding USD bonds. We called this blended index Crogov.

Table 2

Yearly returns of the Crobex and Crostock indices (%)

	Crobex	Crostock
2005	27.72	27.90
2006	60.74	108.42
2007	63.17	68.14
2008	-67.13	-66.13
2009	16.36	19.90
2010	5.33	8.54
2011	-17.56	-15.05
2012	0.01	3.05
2013	3.10	6.23
2014	-2.72	1.08
Return over period	11.61	85.71

Source: Zagreb Stock Exchange, authors' calculations.

As with stocks and bonds, there is no publicly available index for the HRK money market. Market data from which an index could be constructed retroactively are also not readily available. Therefore, we decided to create a proxy for the HRK money market asset class return by using equally weighted returns of the four largest HRK denominated money market funds in Croatia (ZB plus, PBZ novčani, Raiffeisen cash, Erste novčani). All four funds were active through the entire period covered by our study. We "grossed up" net-of-fees returns for the funds using the same methodology we used for grossing up pension fund returns and called this index Cromm. We believe that money market funds return is a valid benchmark for the cash equivalent asset class.

For the euro-zone government bonds asset class we selected the Bloomberg/Effas Euro bloc government bond index (Bloomberg ticker EUGATR Index). Finally, for the global stocks, we chose the MSCI World index (unhedged, Bloomberg ticker NDDUWI Index). The pension funds mostly achieved exposure to global stock markets through direct investments in individual stocks without searching to diversify their portfolio. At the same time, they invested in particular market segments through ETFs probably depending on their market forecasts at that time. We used an unhedged rather than a euro-hedged index because currency exposure restrictions in the Act on Mandatory and Voluntary Pension Funds (1999) applied until 2014 and did not recognize currency hedging as a means of increasing allowed investments out of Croatia.

All indices were translated into HRK for consistency reasons.

Table 3 shows compound annual returns, standard deviations of monthly returns and the correlation matrix of monthly returns for the benchmark indices. It is interesting to note that Croatian government bonds and Croatian equity exhibit only a moderate positive correlation of monthly returns with euro-zone government bonds and global stocks respectively.

TABLE 3
Summary of returns for benchmark indices

Index	Annual return (%)	Standard deviation (%)	Correlation of monthly returns				
			Crogov	EUGATR	Crostock	NDDUWI	Cromm
Crogov	5.53	1.17	1	0.44	0.26	0.31	-0.02
EUGATR	4.92	1.35	0.44	1	-0.25	-0.02	0.04
Crostock	6.32	8.10	0.26	-0.25	1	0.47	-0.03
NDDUWI	7.22	3.84	0.31	-0.02	0.47	1	-0.09
Cromm	4.77	0.18	-0.02	0.04	-0.03	-0.09	1

Source: Bloomberg, Zagreb Stock Exchange.

4.3 POLICY WEIGHTS

In Brinson (1986), long-term average exposures were used as normal weights for the selected asset classes. Initially we planned to use the same approach because there is no publicly determined benchmark for the industry as a whole or for individual funds. However, in addition to the difficulties with the selection of benchmark indices for Croatian asset classes, we encountered difficulties with the setting of "normal weights", in particular for Croatian equity. The market capitalization and free float of the stocks included in the first quotation of the Zagreb Stock Exchange were too low to achieve a substantial exposure to the local market while direct investments out of the first quotation were prohibited until the end of 2007. Indirect exposure to the broader market was possible through UCITS funds; however, pension funds were allowed to invest only in funds with assets under management of over 100 million HRK and were not allowed to own more than 10% of the total number of units outstanding. According to data available, the maximum direct and indirect exposure to Croatian equity that could have been achieved by the pension funds' managers during 2005 and 2006 was on average 7.2%. Actual exposure was 3.5%, which is, in our opinion more realistic because an exposure of 7.2% implies the purchase of a very large part of the free float of all stocks in the first quotation. We calculated the maximum direct and indirect exposure applying regulatory limits to the market value of Croatian stocks listed in the first quotation and assets under management of investment funds pursuing "Croatian stocks" investment strategies. At the same time, investments outside Croatia were restricted to 15%. These practical limitations of the market, combined with various subsequent changes in regulatory limits, are the main reason why domestic and foreign asset classes could not be approached interchangeably by portfolio managers and why it is impossible, in our opinion, to determine unique long-term

policy weights covering the entire period. After thoughtful consideration, we decided to use two sets of "normal weights" – one using the average exposure for the 2005-2006 period and another one for the 2007-2014 period. These weights are shown in table 1.

With the aim of performing a reality check of our results, we performed the same calculations using another set of "normal weights" based on regulatory investment limits. In that case also, we divided the 10 years into two sub-periods: 2005-2006 and 2007-2014, primarily because until 2007 investments outside Croatia were limited to 15%. We used the principle that the "normal weight" should be in the middle between the regulatory minimum and maximum exposure to an asset class. We tried to reconcile this with the above mentioned limits on investments outside Croatia and foreign currency exposure limits that replaced them in 2007 following an amendment to the Act on Mandatory and Voluntary Pension Funds. The results of this exercise are shown in table 4. The advantage of this approach is that it reduces the "home bias" and a certain "overweighting" in stocks. Despite some differences, results are in line with the average weights exhibited in table 1. This does not come as a surprise, as regulatory limits are necessarily the basis for the creation of strategic and tactical asset allocation within fund management companies. If we compare normal weights based on regulatory limits with the actual average asset allocation from table 1, it appears that pension funds are, contrary to the impression disseminated by the media, underweight Croatian government bonds and overweight stocks.

TABLE 4

"Normal weights" based on regulatory investment limits (%)

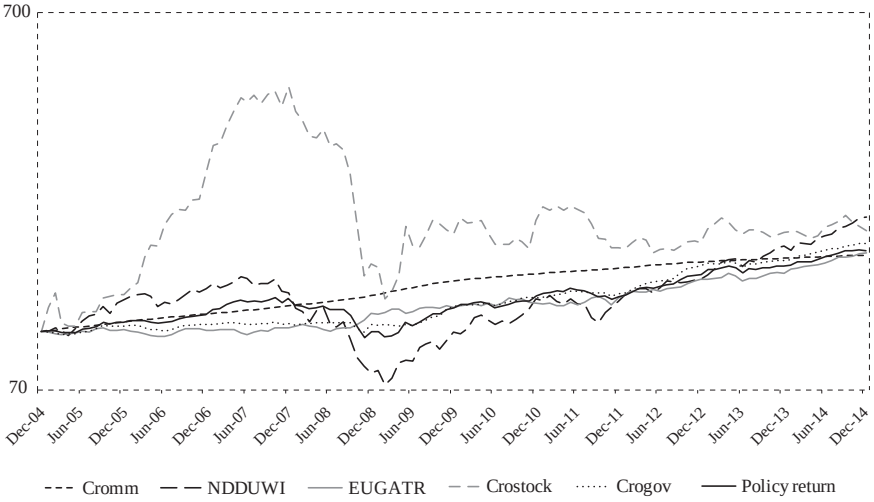
Asset class	2005-2006	2007-2014
Cro. gov. bonds	75	70
Euro. gov. bonds	5	5
Cro. stocks	5	10
Global stocks	5	10
Cash equivalents	10	5

Source: Act on Mandatory and Voluntary Pension Funds (1999), Act on Mandatory Pension Funds (2014), authors' calculations.

Figure 2 shows the dynamics of benchmark indices over the life-span of the study and the corresponding "policy index" based on average weights. The base value of all indices was set to 100. We used a logarithmic scale to achieve better visibility. The picture clearly shows the dramatic development of the Crostock index: it reached its maximum value of around 445 in December 2007 when it achieved a three-year performance of 345%. During the same period, global equities as represented by the NDDUWI index rose 26%. Again, this explains why the results of our study depend so much on the choice of policy weights.

FIGURE 2

Benchmark indices' and policy return from 2005 to 2014



Source: Bloomberg, Zagreb Stock Exchange, authors' calculations.

4.4 TIME HORIZON

Privately managed second pillar mandatory pension funds started investing in May 2002. Investment results from 2002, 2003 and 2004 were not included in our study due to difficulties in obtaining portfolio structure data and because assets under management were very small and grew at very high monthly rates, benefiting from the mandatory monthly contributions from members. Therefore, we believe that investment results from the first few years after the start of the pension reform would not add any value to the relevance of our study. The 10 years period included covers 79% of the life-span of Croatian pension funds and covers both bear and bull markets.

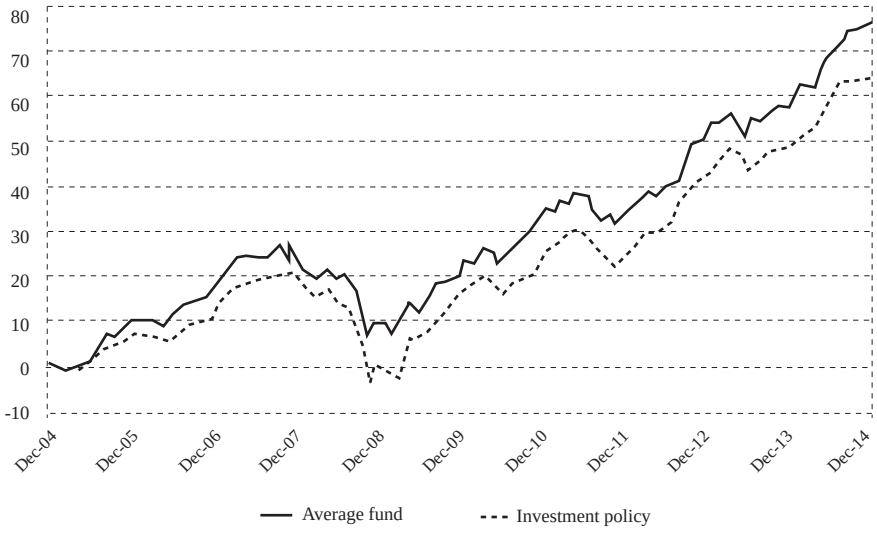
Hoernemann, Junkans and Zarate (2005) argue that ten years is a relatively short time horizon, in particular if it covers a period that would not qualify for a "normal" financial environment. However, when Croatian pension funds are concerned it is the longest time horizon for which consistent information is available. On the other hand, the life-span of our study can hardly qualify for a particularly "normal" period: 2008 and the first quarter of 2009 saw one of the most severe financial crises in history, while the periods preceding and succeeding it saw an extraordinary run in equities. Figure 2 highlights the extraordinary bubble in Croatian equities that started inflating in 2005 and eventually burst in 2008. In addition, in more recent years we have witnessed an unprecedented bull run in bonds. Nevertheless, we believe that such considerations do not affect the validity of our calculations for the 10-year period analysed. It is not the intention of this paper to use historical data for making forecasts on the long-term aptitude of Croatian pension fund managers to outperform their investment policy return but rather to shed light on the results from the previous decade and hopefully set the basis for a well-reasoned debate.

5 RESULTS

We began by calculating gross-of-fees returns for each of the four mandatory pension funds. We then calculated the return of the "average fund" using simple arithmetic average of the monthly returns of individual funds. We also calculated the return for the "investment policy". The total return for the average fund was 76% for the 10-year period. The mean annualized compound total return was 5.82%. The total policy return over 10 years was 63.73%, i.e. 5.05% annually. The study suggests that, on average, portfolio managers of Croatian mandatory pension funds added 77 basis points per year through active investment management. The best performing fund added 125 basis points per year, while the worst performing fund lost 22 basis points. Only one out of four funds underperformed its benchmark. Figure 3 shows the performance of the "investment policy" portfolio and of the "average fund".

FIGURE 3

Comparative performance of the "investment policy" portfolio and the average fund from 2005 to 2014 (%)



Source: Authors' calculations.

The results of the performance attribution analysis suggests that the average fund lost 801 basis points in market timing over 10 years, and gained 2,028 basis points in security selection. The effects on individual funds varied from a low of -1,387 basis points to a high of -133 basis points for tactical allocation and from a low of +1,044 basis points to a high of +2,570 basis points for security selection effects. Table 5 shows average, minimum and maximum timing and selection effects and actual pension funds' returns. This wide range of results shows that portfolio managers actually can to a large extent add or destroy value for pension funds' members through active investment decisions despite regulatory investment limits. The best performing fund displayed positive total active return of 2,061 basis points,

while the worst performing fund showed negative total active return of 343 basis points, over the 10-year period analysed. The worst performing fund displayed the worst results in both market timing and security selection skills. However, the best performing fund displayed the smallest loss in market timing while the best result in security selection was displayed by the second worst performing fund.

TABLE 5

Actual portfolio returns, benchmark returns, timing and selection effects from 2005 to 2014 (%)

	Average	Minimum	Maximum
Benchmark return	63.71	–	–
Timing effect	-8.01	-13.87	-1.33
Selection effect	20.28	10.44	25.70
Actual portfolio return	76.00	60.31	84.34

Source: Authors' calculations.

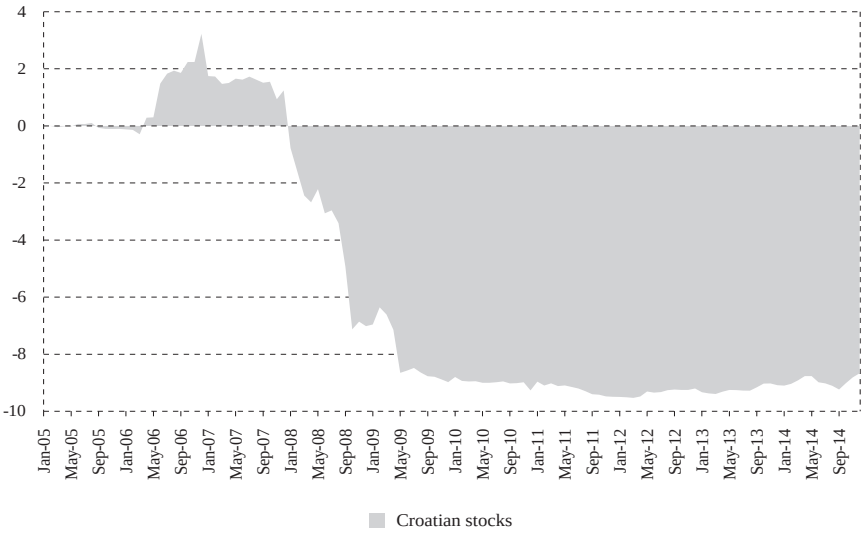
When scrutinized at the individual asset class level, our calculations show that the negative asset allocation effect is on average largest in the Croatian stocks asset class. The total tactical asset allocation effect for the Croatian stocks asset class in the average fund is -867 basis points. Total allocation effects are much lower for other asset classes: +281 basis points for global stocks, -261 basis points for Croatian government bonds, -58 for Euro-zone government bonds and +103 for cash equivalents. As figure 4 very clearly shows, most of the negative tactical asset allocation effect was accumulated in 2008 during the stock market crash. This happened because funds had gradually increased their exposure to Croatian stocks during the previous three years and started 2008 over-weighted in that particular asset class. Actual allocation to individual asset classes at monthly level can be seen in appendix. Moreover, changes in regulation allowed them to purchase Croatian stocks in lower trading segments of the Zagreb Stock Exchange from December 2007. According to evidence, pension funds actively increased their positions in Croatian stocks during the 2008 crisis. This further exacerbated the negative tactical allocation effect as Croatian stocks did not recover when most of the global stock markets did.

These results suggest that Croatian pension fund managers make poor tactical asset allocation decisions while at the same time excel at security selection. This result, in our opinion, needs to be interpreted with care. First of all, as we have seen, it is a very difficult task to determine policy weights due to inherent problems with Croatian asset classes and changes in regulation during the covered period. Secondly, since we do not have data on actual performance of the individual asset classes in funds, our security selection effect is a residual value (see equation (6)). The selection effect as calculated in our study encompasses not only security selection and interaction as defined at the beginning of this paper, but also foreign exchange gains and losses from active foreign currency bets and hedging arrangements as well as all other possible effects (arbitrage, intra-period

trading, etc.). If the funds, for example, experienced large positive effects from hedging currency exposure, the real allocation effect would be more positive than the results suggest and the real security selection select would be lower. It is also worth noting that the selection effect could be that high because of the influence of trading by pension funds on market prices ("market impact"). This is particularly relevant for the Croatian stocks asset class where high volatility, poor diversification and low trading volumes compared to assets under management of the pension funds could easily have caused outperformance as a side effect of the market impact either by overweighting stocks considered fundamentally attractive by the portfolio managers or as a deliberate attempt by the portfolio managers to take advantage of the market impact to beat their peers or internal benchmarks. As previously mentioned, we were not able to calculate selection effects at asset class level. However, figure 5 suggests that most of the positive selection effect was cumulated during the stock market crash of 2008 – the same period during which negative allocation effects were cumulated. During 2008, the total negative allocation effect for the Croatian stocks asset class was -826 basis points (103% of the total allocation effect over the study period) while the total positive selection effect during the same period was 1,642 basis points (over 80% of the total selection effect over the study period). That might imply that the positive selection effect on the Croatian stocks asset class during the 2008 market crash was larger than the negative asset allocation effect on the same asset class. Unfortunately, data are not available to confirm or reject that hypothesis. Detailed calculations of allocation and selection effects at monthly level are given in appendix.

FIGURE 4

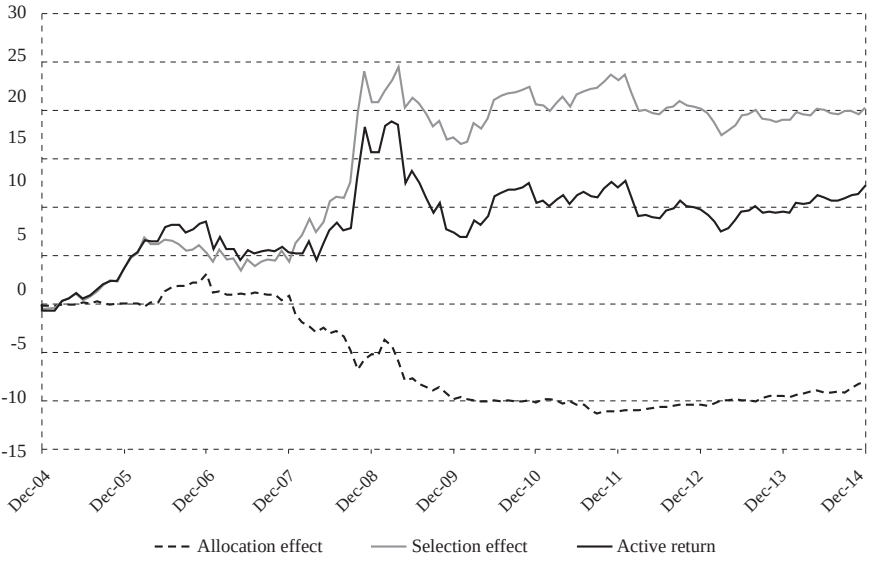
Croatian stocks asset class: cumulative asset allocation effect during the 2005-2014 period (%)



Source: Authors' calculations.

FIGURE 5

Active return, allocation and selection effect for the average fund from 2005 to 2014 (%)



"The Brinson group's study concluded that active management through the selection of individual securities and tactical asset allocation resulted, on average, in a loss of 1.1% for the pension funds, compared with what would have been earned if the fund managers had passively invested at the strategic asset allocation" (Hoernemann, Junkans and Zarate, 2005:26-27). Ibbotson and Kaplan (2000) also explore what portion of the return level is explained by policy return. They calculated the percentage of fund return explained by policy return for each fund as the ratio of compound annual policy return divided by the compound annual total return for the actual fund. "A fund that stayed exactly at its policy mix and invested passively will have a ratio of 1.0, or 100 percent, whereas a fund that outperformed its policy will have a ratio less than 1.0" (Ibbotson and Kaplan, 2000:32). The authors performed calculations on the data sets used in the Brinson studies and their own study and showed that on average, policy accounted for a little more than all of total return. Our study, like the studies conducted in Brinson, Hood and Beebower (1986) and Ibbotson and Kaplan (2000) in the United States, concludes that investment policy provides the largest portion of return. This is not surprising as pension funds are long-term investors and tend to stick to strategic allocation. In addition, because they usually manage large portfolios, they cannot make quick changes in asset allocation. However, the results of active management, using the example of Croatian pension funds, are positive. Our study shows that the average mandatory fund manager in Croatia added 77 basis points on average per year through active asset management. Croatian pension funds outperformed the policy portfolio showing an average ratio of compounded annual returns, calculated as in Ibbotson and Kaplan (2000), of 0.87. More surprising is the size of the asset

allocation and security selection effects. Insufficiency of data prevents us from giving a precise interpretation of such results, but the size and the volatility of Croatian stocks seem to be the main cause behind them.

As mentioned earlier, we also conducted an analysis with policy weights defined as in table 4. A different investment policy resulted in a policy return over the ten year period of 71.2% instead of 63.71%. The average pension fund still outperformed the benchmark, this time by 29 basis points per year.

6 CONCLUSION

Our study suggests that the average mandatory pension fund manager in Croatia has succeeded in adding value to pension fund members through active investment decisions. According to our calculations, the annual compound effect on returns is 77 basis points. The very wide range of active returns achieved by the fund management companies suggests that active investment management decisions actually can add or destroy significant value for the pension funds' members despite regulatory investment limits. Calculations show that funds have on average exhibited negative asset allocation and positive security selection effects. Unfortunately, due to lack of data on actual performance at asset class level we cannot determine precisely the sources of this positive return in security selection. Most of the negative asset allocation effect was cumulated during the stock market crash of 2008 when pension funds were overweighted in Croatian stocks. This asset class demonstrated the highest standard deviation of monthly returns combined with poor long term performance and lack of liquidity that prevented the swift implementation of tactical allocation decisions. Clearly, the lack of publicly available and investible total return benchmark indices for the Croatian market is an obstacle for the development of adequate benchmarking and performance assessment of pension funds. The creation, for example, of Croatian equity "size" benchmarks (e.g. large, mid and small caps) that would also take into consideration free float would make it easier to create "realistic" benchmarks for institutional investors. Obviously, retroactive calculation of total returns of such indices, or at least the Crobextr index, would tremendously facilitate any historical analysis. Similarly, the calculation and publication of a HRK money market index and total return indices of the Croatian government bonds universe (local and international bonds) would help in the achievement of comparability and would certainly give credibility to any kind of performance assessment, reporting or advertising by pension or investment fund managers. We believe that investible benchmarks and unambiguous performance attribution results would bring long-term benefits for both fund managers and members of the pension funds. Firstly, fund managers would explain more easily and clearly to their clients what is happening with their pension assets. This is particularly important in times of turmoil on financial markets. Secondly, it would be easier to determine and rank the quality of portfolio management in the medium and long term. Ultimately, this would lead to more competition, a focus on sustainable returns and additional improvement of the investment process in place in Croatian pension fund management companies.

APPENDIX

Monthly allocations, returns, allocation and selection effects (2005-2014)

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Jan-05	DS	3.50	3.57		15.72		-0.02	
	GS	6.59	7.84		0.31		0.00	
	DB	82.03	74.15		-0.25		-0.09	
	EB	1.67	1.15		-0.35		-0.01	
	MM	6.20	13.30		0.47		0.00	
	Sub.	100.00	100.00	0.09	0.46	1.00	-0.12	-0.51
Feb-05	DS	3.66	3.57		9.42		0.01	
	GS	7.13	7.84		1.71		-0.02	
	DB	77.71	74.15		-0.57		-0.04	
	EB	1.56	1.15		-1.21		-0.01	
	MM	9.93	13.30		0.43		-0.02	
	Sub.	100.00	100.00	0.10	0.09	1.00	-0.07	0.09
Mar-05	DS	3.72	3.57		-16.55		-0.04	
	GS	7.95	7.84		-1.22		0.00	
	DB	67.68	74.15		-1.01		-0.04	
	EB	1.05	1.15		-0.21		0.00	
	MM	19.60	13.30		0.75		0.23	
	Sub.	100.00	100.00	-0.80	-1.34	1.01	0.15	0.77
Apr-05	DS	2.85	3.57		-2.43		0.03	
	GS	7.97	7.84		-3.28		-0.01	
	DB	77.22	74.15		0.33		0.02	
	EB	1.01	1.15		0.41		0.00	
	MM	10.94	13.30		0.51		-0.02	
	Sub.	100.00	100.00	0.14	-0.03	1.00	0.02	0.26
May-05	DS	4.04	3.57		0.00		0.00	
	GS	8.30	7.84		4.60		0.03	
	DB	73.99	74.15		0.04		0.00	
	EB	0.95	1.15		0.30		0.00	
	MM	12.71	13.30		0.43		0.00	
	Sub.	100.00	100.00	0.76	0.45	0.99	0.03	0.49
Jun-05	DS	4.30	3.57		8.89		0.09	
	GS	8.05	7.84		4.76		0.01	
	DB	74.15	74.15		1.31		0.00	
	EB	1.34	1.15		1.18		0.00	
	MM	12.16	13.30		0.40		0.03	
	Sub.	100.00	100.00	1.38	1.73	0.98	0.12	-0.70
Jul-05	DS	2.65	3.57		0.69		0.00	
	GS	7.44	7.84		3.11		-0.02	
	DB	68.91	74.15		0.09		0.03	
	EB	2.38	1.15		-0.67		-0.02	
	MM	18.62	13.30		0.45		0.01	
	Sub.	100.00	100.00	0.59	0.39	1.00	-0.01	0.35

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Aug-05	DS	2.09	3.57		0.00		0.04	
	GS	7.38	7.84		0.80		0.01	
	DB	76.65	74.15		1.75		0.01	
	EB	3.57	1.15		2.19		0.03	
	MM	10.32	13.30		0.51		0.05	
	Sub.	100.00	100.00	1.86	1.46	0.98	0.13	0.54
Sep-05	DS	1.96	3.57		8.71		-0.17	
	GS	7.01	7.84		4.77		-0.03	
	DB	76.77	74.15		2.08		-0.01	
	EB	4.83	1.15		0.72		-0.10	
	MM	9.43	13.30		0.57		0.11	
	Sub.	100.00	100.00	2.64	2.31	0.98	-0.20	0.76
Oct-05	DS	2.30	3.57		0.76		-0.03	
	GS	7.88	7.84		-3.94		0.00	
	DB	74.82	74.15		-0.68		0.00	
	EB	2.99	1.15		-1.87		-0.04	
	MM	12.03	13.30		0.46		-0.03	
	Sub.	100.00	100.00	-0.60	-0.75	1.01	-0.10	0.36
Nov-05	DS	2.82	3.57		1.10		0.00	
	GS	8.89	7.84		6.55		0.10	
	DB	74.33	74.15		0.22		0.00	
	EB	2.78	1.15		0.17		-0.02	
	MM	11.18	13.30		0.40		0.01	
	Sub.	100.00	100.00	0.79	0.77	0.99	0.09	-0.06
Dec-05	DS	3.07	3.57		-0.03		0.00	
	GS	9.38	7.84		1.71		0.03	
	DB	71.09	74.15		0.22		0.01	
	EB	2.30	1.15		0.68		0.01	
	MM	14.17	13.30		0.65		0.00	
	Sub.	100.00	100.00	1.20	0.39	0.99	0.06	1.31
Jan-06	DS	3.26	3.57		4.31		-0.02	
	GS	9.46	7.84		2.10		0.04	
	DB	75.78	74.15		0.49		-0.01	
	EB	2.29	1.15		-0.91		-0.03	
	MM	9.21	13.30		0.44		0.02	
	Sub.	100.00	100.00	1.42	0.73	0.99	0.00	1.17
Feb-06	DS	3.24	3.57		3.31		-0.02	
	GS	10.16	7.84		1.03		0.04	
	DB	77.24	74.15		-0.31		-0.02	
	EB	2.36	1.15		-0.59		-0.01	
	MM	7.00	13.30		0.41		-0.04	
	Sub.	100.00	100.00	0.27	0.02	1.00	-0.05	0.48
Mar-06	DS	3.05	3.57		16.99		-0.15	
	GS	8.90	7.84		0.55		0.01	
	DB	78.12	74.15		-1.20		-0.07	
	EB	2.14	1.15		-1.19		-0.02	
	MM	7.79	13.30		0.39		-0.06	
	Sub.	100.00	100.00	0.53	-0.20	1.00	-0.28	1.52

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Apr-06	DS	7.86	3.57		7.10		0.58	
	GS	8.04	7.84		-1.33		0.00	
	DB	73.70	74.15		-1.29		0.00	
	EB	2.59	1.15		-1.21		-0.01	
	MM	7.82	13.30		0.36		-0.11	
	Sub.	100.00	100.00	-0.86	-0.78	1.01	0.46	-0.61
May-06	DS	7.80	3.57		-0.36		0.01	
	GS	7.43	7.84		-6.03		0.04	
	DB	73.27	74.15		-0.14		-0.01	
	EB	3.12	1.15		-0.21		0.01	
	MM	8.38	13.30		0.40		-0.08	
	Sub.	100.00	100.00	-0.55	-0.54	1.01	-0.02	0.01
Jun-06	DS	8.67	3.57		14.05		1.18	
	GS	6.65	7.84		2.44		-0.04	
	DB	74.37	74.15		-0.62		0.00	
	EB	2.45	1.15		-0.27		-0.01	
	MM	7.86	13.30		0.40		-0.01	
	Sub.	100.00	100.00	1.19	0.28	0.99	1.11	0.42
Jul-06	DS	7.32	3.57		6.30		0.35	
	GS	6.76	7.84		-0.61		0.03	
	DB	71.60	74.15		0.73		0.00	
	EB	2.21	1.15		1.10		0.01	
	MM	12.12	13.30		0.40		0.01	
	Sub.	100.00	100.00	0.93	0.78	0.99	0.39	-0.14
Aug-06	DS	8.17	3.57		2.98		0.10	
	GS	6.93	7.84		2.31		-0.01	
	DB	76.80	74.15		1.69		0.00	
	EB	0.92	1.15		1.97		0.00	
	MM	7.19	13.30		0.39		0.13	
	Sub.	100.00	100.00	1.57	1.62	0.98	0.22	-0.30
Sep-06	DS	7.47	3.57		-0.29		-0.08	
	GS	6.61	7.84		3.40		-0.05	
	DB	75.43	74.15		0.80		0.00	
	EB	0.59	1.15		1.54		-0.01	
	MM	9.90	13.30		0.39		0.03	
	Sub.	100.00	100.00	0.43	0.92	0.99	-0.11	-0.71
Oct-06	DS	7.65	3.57		6.38		0.38	
	GS	6.70	7.84		3.05		-0.04	
	DB	75.50	74.15		0.40		-0.01	
	EB	0.89	1.15		0.13		0.00	
	MM	9.26	13.30		0.36		0.03	
	Sub.	100.00	100.00	1.08	0.81	0.99	0.36	0.08
Nov-06	DS	5.25	3.57		0.30		0.00	
	GS	5.98	7.84		-1.40		0.05	
	DB	74.34	74.15		0.45		0.00	
	EB	2.21	1.15		0.02		0.00	
	MM	12.24	13.30		0.37		0.00	
	Sub.	100.00	100.00	0.60	0.29	1.00	0.05	0.49

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Dec-06	DS	6.87	3.57		18.46		0.99	
	GS	6.13	7.84		2.10		-0.04	
	DB	76.65	74.15		-0.16		-0.04	
	EB	1.96	1.15		-1.06		-0.02	
	MM	8.39	13.30		0.38		0.03	
	Sub.	100.00	100.00	0.84	0.75	0.99	0.91	-0.76
Jan-07	DS	9.64	15.81		17.48		-1.48	
	GS	6.58	8.71		3.22		-0.01	
	DB	76.06	67.29		-0.04		-0.45	
	EB	1.82	1.26		-0.04		-0.03	
	MM	5.90	6.94		0.33		0.05	
	Sub.	100.00	100.00	1.34	3.04	0.98	-1.92	-0.91
Feb-07	DS	14.47	15.81		1.17		-0.01	
	GS	6.83	8.71		-2.76		0.10	
	DB	70.46	67.29		0.81		0.02	
	EB	1.47	1.26		0.69		0.00	
	MM	6.76	6.94		0.33		0.00	
	Sub.	100.00	100.00	1.31	0.52	0.99	0.11	1.22
Mar-07	DS	14.18	15.81		11.88		-0.26	
	GS	6.29	8.71		1.46		0.03	
	DB	72.69	67.29		0.43		-0.17	
	EB	1.04	1.26		0.07		0.01	
	MM	5.79	6.94		0.40		0.04	
	Sub.	100.00	100.00	1.52	2.33	0.98	-0.35	-0.99
Apr-07	DS	16.07	15.81		9.13		0.03	
	GS	7.05	8.71		1.99		-0.01	
	DB	71.02	67.29		0.12		-0.10	
	EB	1.05	1.26		-0.30		0.01	
	MM	4.80	6.94		0.37		0.05	
	Sub.	100.00	100.00	1.74	1.72	0.98	-0.02	0.05
May-07	DS	17.05	15.81		8.15		0.15	
	GS	7.54	8.71		3.28		-0.05	
	DB	68.16	67.29		-0.89		-0.03	
	EB	1.56	1.26		-1.99		-0.02	
	MM	5.68	6.94		0.36		0.01	
	Sub.	100.00	100.00	0.34	0.98	0.99	0.08	-1.16
Jun-07	DS	16.93	15.81		-2.60		-0.03	
	GS	8.41	8.71		-1.08		0.00	
	DB	65.96	67.29		-0.52		-0.01	
	EB	1.49	1.26		-0.63		0.00	
	MM	7.21	6.94		0.40		0.01	
	Sub.	100.00	100.00	-0.23	-0.84	1.01	-0.03	1.06
Jul-07	DS	17.44	15.81		4.49		0.10	
	GS	7.43	8.71		-3.75		0.10	
	DB	63.86	67.29		0.40		0.02	
	EB	2.13	1.26		1.36		0.01	
	MM	9.14	6.94		0.42		-0.01	
	Sub.	100.00	100.00	0.46	0.70	0.99	0.22	-0.62

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Aug-07	DS	17.13	15.81		-5.31		-0.11	
	GS	7.94	8.71		0.58		-0.02	
	DB	65.95	67.29		0.20		-0.02	
	EB	0.68	1.26		1.20		-0.02	
	MM	8.30	6.94		0.45		0.02	
	Sub.	100.00	100.00	-0.43	-0.61	1.01	-0.13	0.43
Sep-07	DS	14.58	15.81		6.08		-0.11	
	GS	7.95	8.71		0.16		0.01	
	DB	67.11	67.29		-0.15		0.00	
	EB	0.60	1.26		-0.51		0.02	
	MM	9.77	6.94		0.40		-0.02	
	Sub.	100.00	100.00	0.93	0.90	0.99	-0.10	0.15
Oct-07	DS	18.98	15.81		1.97		0.03	
	GS	6.64	8.71		2.46		-0.04	
	DB	64.78	67.29		1.13		0.01	
	EB	0.53	1.26		1.74		0.00	
	MM	9.07	6.94		0.51		-0.03	
	Sub.	100.00	100.00	1.30	1.34	0.99	-0.03	-0.04
Nov-07	DS	21.71	15.81		-8.87		-0.61	
	GS	5.65	8.71		-6.80		0.21	
	DB	65.66	67.29		-1.43		-0.04	
	EB	0.31	1.26		0.14		-0.05	
	MM	6.67	6.94		0.44		-0.02	
	Sub.	100.00	100.00	-2.68	-2.93	1.03	-0.51	0.95
Dec-07	DS	17.61	15.81		12.77		0.31	
	GS	5.00	8.71		-0.83		0.20	
	DB	67.77	67.29		0.69		-0.01	
	EB	0.26	1.26		-0.15		0.04	
	MM	9.36	6.94		0.49		-0.08	
	Sub.	100.00	100.00	2.06	2.44	0.98	0.46	-1.09
Jan-08	DS	26.95	15.81		-13.95		-2.02	
	GS	3.88	8.71		-9.29		0.48	
	DB	65.08	67.29		-1.05		-0.10	
	EB	0.25	1.26		1.32		-0.09	
	MM	3.84	6.94		0.51		-0.23	
	Sub.	100.00	100.00	-3.69	-3.67	1.04	-1.96	1.93
Feb-08	DS	25.26	15.81		-5.66		-0.83	
	GS	3.78	8.71		-2.07		0.13	
	DB	66.48	67.29		0.80		-0.02	
	EB	0.25	1.26		0.91		-0.02	
	MM	4.22	6.94		0.47		-0.04	
	Sub.	100.00	100.00	-0.50	-0.49	1.00	-0.79	0.78
Mar-08	DS	22.70	15.81		-8.92		-0.83	
	GS	3.33	8.71		-5.66		0.35	
	DB	66.32	67.29		-0.07		-0.03	
	EB	0.25	1.26		-0.89		-0.02	
	MM	7.40	6.94		0.45		0.02	
	Sub.	100.00	100.00	-1.25	-1.93	1.02	-0.52	1.68

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Apr-08	DS	22.44	15.81		-1.12		-0.24	
	GS	5.28	8.71		6.89		-0.34	
	DB	66.60	67.29		0.80		0.00	
	EB	0.25	1.26		-0.52		0.03	
	MM	5.43	6.94		0.43		0.01	
	Sub.	100.00	100.00	-0.12	0.99	1.00	-0.54	-1.33
May-08	DS	22.02	15.81		5.41		0.46	
	GS	5.48	8.71		1.80		-0.04	
	DB	65.81	67.29		-0.07		0.03	
	EB	0.24	1.26		-1.51		0.04	
	MM	6.45	6.94		0.46		0.00	
	Sub.	100.00	100.00	1.89	0.98	0.99	0.49	1.04
Jun-08	DS	22.47	15.81		-9.82		-0.85	
	GS	5.58	8.71		-9.60		0.39	
	DB	62.99	67.29		-0.16		-0.17	
	EB	0.79	1.26		-1.10		-0.01	
	MM	8.17	6.94		0.45		0.06	
	Sub.	100.00	100.00	-1.59	-2.48	1.02	-0.58	2.13
Jul-08	DS	20.58	15.81		1.65		0.10	
	GS	5.09	8.71		-1.63		0.12	
	DB	62.51	67.29		0.29		0.01	
	EB	1.08	1.26		1.72		0.00	
	MM	10.75	6.94		0.47		0.01	
	Sub.	100.00	100.00	0.80	0.37	0.99	0.23	0.50
Aug-08	DS	23.35	15.81		-3.68		-0.45	
	GS	5.70	8.71		3.40		-0.18	
	DB	61.17	67.29		0.09		-0.03	
	EB	1.04	1.26		0.32		0.00	
	MM	8.73	6.94		0.47		0.02	
	Sub.	100.00	100.00	-0.63	-0.19	1.00	-0.64	-0.11
Sep-08	DS	23.75	15.81		-14.21		-1.52	
	GS	5.39	8.71		-10.04		0.39	
	DB	60.49	67.29		-0.27		-0.36	
	EB	0.69	1.26		-0.10		-0.03	
	MM	9.68	6.94		0.46		0.18	
	Sub.	100.00	100.00	-3.15	-3.27	1.03	-1.34	1.56
Oct-08	DS	22.17	15.81		-26.53		-2.20	
	GS	5.21	8.71		-10.65		0.20	
	DB	61.26	67.29		-3.52		-0.43	
	EB	0.68	1.26		2.03		-0.10	
	MM	10.68	6.94		0.62		0.54	
	Sub.	100.00	100.00	-4.52	-7.42	1.06	-1.97	7.20
Nov-08	DS	15.07	15.81		-26.49		0.27	
	GS	4.41	8.71		-5.29		-0.04	
	DB	65.97	67.29		-1.90		-0.09	
	EB	2.77	1.26		2.99		0.24	
	MM	11.77	6.94		0.71		0.56	
	Sub.	100.00	100.00	-2.93	-5.84	1.05	0.94	4.23

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Dec-08	DS	13.13	15.81		7.42		-0.16	
	GS	4.27	8.71		-3.94		0.57	
	DB	75.57	67.29		4.34		0.07	
	EB	2.40	1.26		3.89		0.00	
	MM	4.63	6.94		0.68		0.12	
	Sub.	100.00	100.00	2.28	3.84	0.97	0.60	-3.19
Jan-09	DS	13.92	15.81		-2.11		0.06	
	GS	4.34	8.71		1.30		-0.12	
	DB	73.65	67.29		-0.17		0.01	
	EB	2.26	1.26		-0.46		0.00	
	MM	5.84	6.94		0.67		-0.02	
	Sub.	100.00	100.00	-0.30	-0.29	1.00	-0.07	0.07
Feb-09	DS	13.40	15.81		-17.52		0.60	
	GS	3.40	8.71		-8.44		0.49	
	DB	72.23	67.29		0.41		0.31	
	EB	2.48	1.26		1.20		0.09	
	MM	8.49	6.94		0.91		0.11	
	Sub.	100.00	100.00	-1.57	-3.15	1.02	1.60	1.14
Mar-09	DS	12.19	15.81		5.15		-0.25	
	GS	2.66	8.71		4.25		-0.33	
	DB	72.68	67.29		-0.44		-0.13	
	EB	2.48	1.26		1.95		0.02	
	MM	9.98	6.94		1.12		0.01	
	Sub.	100.00	100.00	1.25	0.99	0.99	-0.69	1.13
Apr-09	DS	11.78	15.81		10.08		-0.53	
	GS	3.06	8.71		10.24		-0.77	
	DB	72.44	67.29		-0.66		-0.24	
	EB	2.71	1.26		0.25		-0.04	
	MM	10.01	6.94		0.81		-0.07	
	Sub.	100.00	100.00	1.89	2.10	0.98	-1.65	1.31
May-09	DS	12.55	15.81		34.89		-1.51	
	GS	3.52	8.71		1.17		0.44	
	DB	70.45	67.29		1.07		-0.27	
	EB	2.73	1.26		-2.58		-0.21	
	MM	10.76	6.94		0.77		-0.35	
	Sub.	100.00	100.00	2.65	6.36	0.96	-1.90	-4.13
Jun-09	DS	15.31	15.81		-11.34		0.08	
	GS	2.78	8.71		-0.45		-0.16	
	DB	67.84	67.29		-0.40		0.02	
	EB	1.94	1.26		0.75		0.03	
	MM	12.13	6.94		0.73		0.25	
	Sub.	100.00	100.00	-1.33	-2.04	1.02	0.21	1.02
Jul-09	DS	13.65	15.81		-0.67		0.09	
	GS	3.56	8.71		8.58		-0.58	
	DB	68.95	67.29		1.66		-0.01	
	EB	2.02	1.26		2.33		0.01	
	MM	11.81	6.94		0.78		-0.09	
	Sub.	100.00	100.00	1.14	1.84	0.99	-0.57	-0.60

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Aug-09	DS	13.76	15.81		7.19		-0.16	
	GS	4.92	8.71		2.08		0.02	
	DB	65.46	67.29		1.60		0.03	
	EB	2.08	1.26		0.36		-0.03	
	MM	13.78	6.94		0.79		-0.19	
	Sub.	100.00	100.00	1.55	2.46	0.98	-0.33	-1.18
Sep-09	DS	14.65	15.81		9.65		-0.13	
	GS	4.53	8.71		1.79		0.09	
	DB	63.77	67.29		1.91		0.06	
	EB	2.17	1.26		0.09		-0.04	
	MM	14.88	6.94		0.76		-0.30	
	Sub.	100.00	100.00	2.09	3.02	0.98	-0.32	-1.22
Oct-09	DS	16.40	15.81		-2.15		-0.02	
	GS	3.95	8.71		-4.37		0.34	
	DB	61.38	67.29		0.71		-0.09	
	EB	2.12	1.26		-0.71		-0.01	
	MM	16.16	6.94		0.72		0.14	
	Sub.	100.00	100.00	0.35	-0.20	1.00	0.36	0.58
Nov-09	DS	16.69	15.81		-3.39		-0.09	
	GS	4.00	8.71		4.91		-0.17	
	DB	61.04	67.29		4.21		-0.15	
	EB	3.69	1.26		1.91		-0.04	
	MM	14.58	6.94		0.67		-0.27	
	Sub.	100.00	100.00	1.21	2.80	0.98	-0.71	-1.94
Dec-09	DS	17.37	15.81		-2.80		-0.10	
	GS	4.77	8.71		5.60		-0.31	
	DB	59.98	67.29		1.20		-0.04	
	EB	3.37	1.26		-0.95		-0.07	
	MM	14.51	6.94		0.50		-0.05	
	Sub.	100.00	100.00	0.66	0.88	0.99	-0.56	0.19
Jan-10	DS	17.17	15.81		10.22		0.18	
	GS	5.38	8.71		-1.36		0.20	
	DB	59.79	67.29		1.15		0.15	
	EB	3.21	1.26		0.56		-0.06	
	MM	14.44	6.94		0.51		-0.22	
	Sub.	100.00	100.00	2.04	2.31	0.98	0.25	-0.69
Feb-10	DS	18.74	15.81		-2.72		-0.14	
	GS	5.89	8.71		3.46		-0.16	
	DB	58.08	67.29		0.21		-0.03	
	EB	3.01	1.26		0.56		0.02	
	MM	14.29	6.94		0.35		0.04	
	Sub.	100.00	100.00	0.06	0.05	1.00	-0.27	0.30
Mar-10	DS	19.28	15.81		0.47		-0.02	
	GS	6.88	8.71		7.20		-0.20	
	DB	57.66	67.29		0.09		0.11	
	EB	2.92	1.26		0.51		-0.01	
	MM	13.25	6.94		0.38		-0.04	
	Sub.	100.00	100.00	1.82	0.80	0.99	-0.15	1.87

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Apr-10	DS	16.91	15.81		1.11		0.01	
	GS	8.29	8.71		1.52		-0.01	
	DB	62.72	67.29		0.53		0.01	
	EB	2.81	1.26		-0.80		-0.04	
	MM	9.26	6.94		0.35		-0.01	
	Sub.	100.00	100.00	0.35	0.68	0.99	-0.04	-0.52
May-10	DS	16.29	15.81		-7.86		-0.05	
	GS	8.81	8.71		-3.32		0.00	
	DB	62.10	67.29		0.21		-0.14	
	EB	2.43	1.26		1.76		0.06	
	MM	10.36	6.94		0.35		0.10	
	Sub.	100.00	100.00	-0.81	-1.34	1.01	-0.03	0.94
Jun-10	DS	15.81	15.81		-6.37		0.00	
	GS	9.39	8.71		-2.69		0.00	
	DB	62.53	67.29		-1.71		-0.06	
	EB	2.05	1.26		-1.71		0.01	
	MM	10.23	6.94		0.27		0.15	
	Sub.	100.00	100.00	-1.16	-2.39	1.02	0.10	2.03
Jul-10	DS	14.60	15.81		0.32		0.02	
	GS	9.28	8.71		2.23		0.01	
	DB	60.33	67.29		1.46		-0.02	
	EB	1.86	1.26		1.76		0.00	
	MM	13.94	6.94		0.34		-0.11	
	Sub.	100.00	100.00	1.46	1.27	0.99	-0.10	0.41
Aug-10	DS	14.23	15.81		-0.21		0.03	
	GS	8.13	8.71		-1.27		0.02	
	DB	70.25	67.29		1.45		0.03	
	EB	1.51	1.26		2.76		0.01	
	MM	5.88	6.94		0.35		0.01	
	Sub.	100.00	100.00	1.07	0.89	0.99	0.10	0.22
Sep-10	DS	14.21	15.81		3.91		-0.07	
	GS	8.20	8.71		2.49		-0.01	
	DB	69.43	67.29		0.67		-0.02	
	EB	1.74	1.26		-0.74		-0.02	
	MM	6.43	6.94		0.33		0.01	
	Sub.	100.00	100.00	1.28	1.30	0.99	-0.11	0.08
Oct-10	DS	15.62	15.81		-2.17		0.01	
	GS	9.27	8.71		2.76		0.02	
	DB	67.08	67.29		1.14		0.00	
	EB	1.64	1.26		0.15		0.00	
	MM	6.39	6.94		0.35		0.00	
	Sub.	100.00	100.00	0.84	0.69	0.99	0.03	0.22
Nov-10	DS	15.37	15.81		-4.16		0.03	
	GS	10.88	8.71		3.59		0.13	
	DB	66.56	67.29		0.65		-0.01	
	EB	1.47	1.26		-1.61		-0.01	
	MM	5.71	6.94		0.33		0.00	
	Sub.	100.00	100.00	0.40	0.10	1.00	0.14	0.37

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Dec-10	DS	14.67	15.81		18.41		-0.28	
	GS	10.17	8.71		6.30		0.07	
	DB	69.67	67.29		-0.35		-0.14	
	EB	1.08	1.26		-0.92		0.01	
	MM	4.41	6.94		0.30		0.12	
	Sub.	100.00	100.00	2.01	3.23	0.97	-0.22	-1.80
Jan-11	DS	18.35	15.81		8.88		0.31	
	GS	10.87	8.71		-0.95		-0.09	
	DB	66.56	67.29		0.48		0.01	
	EB	1.00	1.26		-0.10		0.01	
	MM	3.21	6.94		0.31		0.08	
	Sub.	100.00	100.00	1.76	1.66	0.98	0.32	-0.15
Feb-11	DS	19.10	15.81		-2.00		-0.13	
	GS	10.45	8.71		3.19		0.08	
	DB	64.86	67.29		0.64		-0.01	
	EB	0.97	1.26		0.01		0.00	
	MM	4.62	6.94		0.28		0.01	
	Sub.	100.00	100.00	0.09	0.41	1.00	-0.06	-0.49
Mar-11	DS	18.46	15.81		2.46		0.08	
	GS	10.85	8.71		-3.43		-0.15	
	DB	64.08	67.29		1.00		-0.01	
	EB	0.97	1.26		-1.10		0.01	
	MM	5.65	6.94		0.32		0.01	
	Sub.	100.00	100.00	1.17	0.77	0.99	-0.07	0.73
Apr-11	DS	18.48	15.81		-2.22		-0.10	
	GS	13.82	8.71		-1.65		-0.13	
	DB	63.60	67.29		0.54		-0.04	
	EB	0.93	1.26		-0.23		0.00	
	MM	3.18	6.94		0.31		-0.03	
	Sub.	100.00	100.00	0.15	-0.11	1.00	-0.30	0.75
May-11	DS	18.63	15.81		2.27		0.02	
	GS	13.94	8.71		2.99		0.11	
	DB	63.28	67.29		1.67		0.01	
	EB	0.91	1.26		2.06		0.00	
	MM	3.24	6.94		0.27		0.09	
	Sub.	100.00	100.00	1.28	1.78	0.98	0.23	-1.07
Jun-11	DS	18.89	15.81		-1.86		-0.05	
	GS	14.35	8.71		-3.02		-0.21	
	DB	62.63	67.29		-0.43		-0.03	
	EB	0.91	1.26		-1.23		0.00	
	MM	3.22	6.94		0.24		-0.07	
	Sub.	100.00	100.00	-0.32	-0.84	1.01	-0.36	1.26
Jul-11	DS	17.51	15.81		-2.32		-0.06	
	GS	13.59	8.71		-0.11		0.02	
	DB	61.28	67.29		-0.07		-0.03	
	EB	0.87	1.26		1.25		-0.01	
	MM	6.76	6.94		0.23		0.00	
	Sub.	100.00	100.00	-0.21	-0.39	1.00	-0.08	0.39

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Aug-11	DS	17.06	15.81		-6.20		-0.09	
	GS	11.50	8.71		-7.62		-0.27	
	DB	67.69	67.29		-0.55		0.01	
	EB	0.37	1.26		2.89		-0.07	
	MM	3.37	6.94		0.25		-0.14	
	Sub.	100.00	100.00	-2.21	-1.96	1.02	-0.57	0.13
Sep-11	DS	16.70	15.81		-8.60		-0.11	
	GS	11.46	8.71		-3.17		-0.07	
	DB	68.16	67.29		-0.09		0.02	
	EB	0.38	1.26		0.64		-0.03	
	MM	3.31	6.94		0.26		-0.12	
	Sub.	100.00	100.00	-1.74	-1.67	1.02	-0.31	0.18
Oct-11	DS	17.05	15.81		-0.39		-0.02	
	GS	10.84	8.71		6.10		0.20	
	DB	68.64	67.29		-0.08		-0.01	
	EB	0.35	1.26		-2.02		0.04	
	MM	3.12	6.94		0.29		0.01	
	Sub.	100.00	100.00	0.93	0.41	0.99	0.22	0.65
Nov-11	DS	16.84	15.81		-5.38		-0.06	
	GS	9.65	8.71		3.22		0.09	
	DB	67.75	67.29		-2.20		0.00	
	EB	0.33	1.26		-2.79		0.01	
	MM	5.44	6.94		0.33		-0.06	
	Sub.	100.00	100.00	-1.66	-2.06	1.02	-0.02	0.72
Dec-11	DS	16.40	15.81		0.31		-0.01	
	GS	10.42	8.71		4.08		0.07	
	DB	66.62	67.29		1.84		0.00	
	EB	0.33	1.26		4.30		-0.04	
	MM	6.23	6.94		0.34		0.02	
	Sub.	100.00	100.00	1.37	1.72	0.98	0.03	-0.61
Jan-12	DS	16.06	15.81		-0.49		0.00	
	GS	11.85	8.71		4.03		0.18	
	DB	67.47	67.29		0.48		0.00	
	EB	0.33	1.26		2.20		-0.02	
	MM	4.29	6.94		0.35		0.01	
	Sub.	100.00	100.00	1.07	0.65	0.99	0.16	0.55
Feb-12	DS	15.30	15.81		3.73		-0.01	
	GS	10.37	8.71		2.50		0.01	
	DB	67.30	67.29		2.14		0.00	
	EB	0.33	1.26		2.03		0.00	
	MM	6.70	6.94		0.37		0.01	
	Sub.	100.00	100.00	1.19	2.30	0.98	0.01	-1.84
Mar-12	DS	14.51	15.81		2.85		-0.02	
	GS	10.21	8.71		1.10		-0.02	
	DB	68.79	67.29		1.93		0.00	
	EB	0.32	1.26		-0.82		0.04	
	MM	6.17	6.94		0.38		0.02	
	Sub.	100.00	100.00	0.78	1.86	0.99	0.02	-1.83

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Apr-12	DS	14.60	15.81		-1.54		0.05	
	GS	9.82	8.71		0.13		-0.01	
	DB	68.13	67.29		1.63		0.01	
	EB	0.31	1.26		0.28		0.01	
	MM	7.13	6.94		0.38		0.00	
	Sub.	100.00	100.00	0.95	0.89	0.99	0.05	0.04
May-12	DS	14.25	15.81		-7.12		0.17	
	GS	10.39	8.71		-2.59		-0.06	
	DB	70.11	67.29		1.11		0.08	
	EB	0.44	1.26		1.39		-0.03	
	MM	4.92	6.94		0.40		-0.03	
	Sub.	100.11	100.00	-0.69	-0.56	1.01	0.14	-0.37
Jun-12	DS	13.42	15.81		1.78		-0.04	
	GS	10.56	8.71		3.36		0.08	
	DB	71.25	67.29		0.32		-0.03	
	EB	0.43	1.26		-1.26		0.03	
	MM	4.33	6.94		0.36		0.02	
	Sub.	100.00	100.00	0.77	0.79	0.99	0.06	-0.10
Jul-12	DS	13.58	15.81		0.51		0.02	
	GS	10.13	8.71		3.87		0.07	
	DB	70.05	67.29		0.82		-0.01	
	EB	0.42	1.26		1.74		-0.01	
	MM	5.81	6.94		0.30		0.01	
	Sub.	100.00	100.00	1.46	1.02	0.99	0.08	0.67
Aug-12	DS	12.87	15.81		-0.83		0.07	
	GS	10.24	8.71		-0.25		-0.02	
	DB	71.07	67.29		0.98		0.03	
	EB	0.36	1.26		0.39		0.00	
	MM	5.46	6.94		0.30		0.01	
	Sub.	100.00	100.00	0.68	0.53	0.99	0.08	0.17
Sep-12	DS	13.15	15.81		2.36		0.02	
	GS	8.84	8.71		-0.72		-0.01	
	DB	71.37	67.29		3.73		0.06	
	EB	0.44	1.26		0.88		0.03	
	MM	6.20	6.94		0.31		0.03	
	Sub.	100.00	100.00	3.30	2.85	0.97	0.13	0.61
Oct-12	DS	13.50	15.81		2.56		-0.01	
	GS	10.52	8.71		0.34		-0.06	
	DB	69.26	67.29		2.57		0.01	
	EB	0.42	1.26		2.03		0.00	
	MM	6.29	6.94		0.31		0.02	
	Sub.	100.00	100.00	1.86	2.21	0.98	-0.03	-0.55
Nov-12	DS	13.39	15.81		0.56		0.00	
	GS	9.87	8.71		1.24		0.01	
	DB	68.83	67.29		0.48		0.00	
	EB	0.41	1.26		1.74		-0.02	
	MM	7.49	6.94		0.25		0.00	
	Sub.	100.00	100.00	0.52	0.56	0.99	-0.01	-0.06

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Dec-12	DS	13.56	15.81		-0.88		0.05	
	GS	11.16	8.71		0.35		0.00	
	DB	67.71	67.29		0.78		0.00	
	EB	0.41	1.26		0.82		-0.01	
	MM	7.17	6.94		0.17		0.00	
	Sub.	100.00	100.00	0.34	0.44	1.00	0.04	-0.21
Jan-13	DS	14.46	15.81		8.74		-0.13	
	GS	10.87	8.71		2.66		-0.01	
	DB	67.47	67.29		1.77		0.00	
	EB	0.41	1.26		0.09		0.04	
	MM	6.79	6.94		0.23		0.01	
	Sub.	100.00	100.00	2.47	2.82	0.97	-0.10	-0.48
Feb-13	DS	14.99	15.81		3.31		-0.04	
	GS	12.23	8.71		3.77		0.20	
	DB	65.61	67.29		-0.76		0.03	
	EB	0.39	1.26		0.30		0.00	
	MM	6.77	6.94		0.20		0.00	
	Sub.	100.00	100.00	-0.05	0.36	1.00	0.20	-0.88
Mar-13	DS	15.33	15.81		3.47		-0.02	
	GS	12.77	8.71		4.51		0.24	
	DB	65.24	67.29		0.01		0.03	
	EB	0.50	1.26		0.54		0.01	
	MM	6.16	6.94		0.20		0.01	
	Sub.	100.00	100.00	0.31	0.97	0.99	0.27	-1.37
Apr-13	DS	14.43	15.81		-2.72		0.08	
	GS	11.61	8.71		1.28		0.02	
	DB	65.35	67.29		1.55		-0.03	
	EB	0.24	1.26		2.80		-0.03	
	MM	8.37	6.94		0.19		-0.01	
	Sub.	100.00	100.00	1.03	0.77	0.99	0.03	0.40
May-13	DS	14.80	15.81		-4.61		0.06	
	GS	11.63	8.71		0.89		0.10	
	DB	68.08	67.29		-0.64		0.01	
	EB	0.24	1.26		-1.77		0.01	
	MM	5.25	6.94		0.17		-0.04	
	Sub.	100.00	100.00	-0.67	-1.09	1.01	0.14	0.57
Jun-13	DS	14.71	15.81		-2.41		-0.01	
	GS	10.56	8.71		-5.04		-0.08	
	DB	67.28	67.29		-2.74		0.00	
	EB	1.49	1.26		-2.93		0.00	
	MM	5.95	6.94		0.16		-0.05	
	Sub.	100.00	100.00	-2.15	-2.69	1.02	-0.13	1.08
Jul-13	DS	13.46	15.81		2.69		-0.02	
	GS	10.60	8.71		4.14		0.06	
	DB	66.15	67.29		2.13		0.00	
	EB	1.41	1.26		1.33		0.00	
	MM	8.39	6.94		0.18		-0.05	
	Sub.	100.00	100.00	2.33	2.25	0.98	-0.01	0.15

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Aug-13	DS	12.85	15.81		-0.14		0.00	
	GS	10.90	8.71		-1.04		-0.03	
	DB	72.19	67.29		-0.14		0.00	
	EB	1.50	1.26		0.22		0.00	
	MM	2.55	6.94		0.18		-0.03	
	Sub.	100.00	100.00	0.03	-0.19	1.00	-0.06	0.45
Sep-13	DS	12.79	15.81		-1.43		0.12	
	GS	10.67	8.71		3.80		0.10	
	DB	72.55	67.29		1.12		0.02	
	EB	1.49	1.26		1.61		0.00	
	MM	2.50	6.94		0.17		0.05	
	Sub.	100.00	100.00	0.53	0.89	0.99	0.29	-0.89
Oct-13	DS	12.82	15.81		-2.30		0.13	
	GS	10.64	8.71		1.99		0.06	
	DB	71.83	67.29		0.64		0.03	
	EB	1.48	1.26		1.60		0.00	
	MM	3.24	6.94		0.18		0.01	
	Sub.	100.00	100.00	0.31	0.27	1.00	0.23	-0.16
Nov-13	DS	12.67	15.81		0.69		0.00	
	GS	9.99	8.71		3.06		0.05	
	DB	71.73	67.29		0.57		-0.02	
	EB	1.66	1.26		0.46		0.00	
	MM	3.95	6.94		0.17		0.03	
	Sub.	100.00	100.00	0.69	0.77	0.99	0.07	-0.22
Dec-13	DS	13.22	15.81		1.50		-0.06	
	GS	10.38	8.71		1.04		0.03	
	DB	71.37	67.29		-0.32		-0.03	
	EB	1.81	1.26		-0.54		-0.01	
	MM	3.22	6.94		0.17		0.00	
	Sub.	100.00	100.00	0.21	0.12	1.00	-0.07	0.23
Jan-14	DS	12.40	15.81		0.77		-0.01	
	GS	11.33	8.71		-2.49		-0.13	
	DB	69.27	67.29		0.84		0.01	
	EB	1.80	1.26		2.48		0.02	
	MM	5.19	6.94		0.17		0.01	
	Sub.	100.00	100.00	0.44	0.51	1.00	-0.11	-0.02
Feb-14	DS	14.06	15.81		-0.22		0.06	
	GS	10.45	8.71		4.82		0.08	
	DB	68.53	67.29		2.19		0.01	
	EB	2.22	1.26		0.88		-0.02	
	MM	4.74	6.94		0.18		0.06	
	Sub.	100.00	100.00	2.50	1.88	0.98	0.20	0.84
Mar-14	DS	12.09	15.81		-1.95		0.12	
	GS	10.77	8.71		-0.45		-0.02	
	DB	72.60	67.29		0.45		0.04	
	EB	2.40	1.26		1.00		0.02	
	MM	2.15	6.94		0.18		-0.02	
	Sub.	100.00	100.00	-0.10	-0.02	1.00	0.15	-0.29

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Apr-14	DS	11.87	15.81		-2.11		0.15	
	GS	10.84	8.71		-0.62		-0.03	
	DB	72.54	67.29		0.75		0.06	
	EB	1.58	1.26		0.27		0.00	
	MM	3.17	6.94		0.16		0.00	
	Sub.	100.00	100.00	0.18	0.13	1.00	0.18	-0.10
May-14	DS	11.89	15.81		1.46		0.00	
	GS	10.94	8.71		3.63		0.08	
	DB	71.32	67.29		1.33		-0.01	
	EB	1.65	1.26		0.72		0.00	
	MM	4.19	6.94		0.16		0.06	
	Sub.	100.00	100.00	1.96	1.46	0.98	0.13	0.71
Jun-14	DS	12.27	15.81		5.45		-0.22	
	GS	11.54	8.71		1.56		-0.01	
	DB	71.34	67.29		1.15		-0.04	
	EB	1.40	1.26		0.89		0.00	
	MM	3.45	6.94		0.16		0.10	
	Sub.	100.00	100.00	1.63	1.79	0.98	-0.18	-0.09
Jul-14	DS	11.70	15.81		1.48		-0.04	
	GS	12.34	8.71		0.81		-0.01	
	DB	72.91	67.29		0.84		-0.01	
	EB	3.19	1.26		1.81		0.03	
	MM	1.75	6.94		0.17		0.06	
	Sub.	101.89	100.00	0.73	0.91	0.99	0.04	-0.35
Aug-14	DS	11.76	15.81		2.07		-0.08	
	GS	12.24	8.71		3.80		0.17	
	DB	71.11	67.29		0.24		-0.04	
	EB	1.09	1.26		1.68		0.00	
	MM	3.80	6.94		0.16		0.04	
	Sub.	100.00	100.00	0.84	0.85	0.99	0.09	-0.11
Sep-14	DS	12.20	15.81		3.86		-0.13	
	GS	12.64	8.71		1.13		-0.04	
	DB	70.85	67.29		1.46		-0.01	
	EB	0.99	1.26		0.10		0.01	
	MM	3.33	6.94		0.16		0.09	
	Sub.	100.00	100.00	1.83	1.70	0.98	-0.08	0.30
Oct-14	DS	12.55	15.81		-4.14		0.22	
	GS	13.07	8.71		1.87		0.15	
	DB	69.81	67.29		0.52		0.03	
	EB	0.99	1.26		0.71		0.00	
	MM	3.59	6.94		0.15		-0.02	
	Sub.	100.00	100.00	0.11	-0.12	1.00	0.38	0.01
Nov-14	DS	12.05	15.81		-2.54		0.20	
	GS	13.79	8.71		3.27		0.22	
	DB	69.78	67.29		1.11		0.02	
	EB	0.73	1.26		1.44		-0.01	
	MM	3.65	6.94		0.15		0.03	
	Sub.	100.00	100.00	0.71	0.66	0.99	0.47	-0.37

		$w_{p,i}$ (%)	$w_{b,i}$ (%)	r_p (%)	$r_{b,i}$ (%)	C_f	All_i (%)	Sel (%)
Dec-14	DS	12.05	15.81		-2.60		0.14	
	GS	13.99	8.71		0.60		0.09	
	DB	68.16	67.29		-0.02		0.00	
	EB	0.71	1.26		0.69		-0.01	
	MM	5.09	6.94		0.15		-0.02	
	Sub.	100.00	100.00	0.19	-0.35	1.00	0.21	0.71
2005 - 2014	DS						-8.67	
	GS						2.81	
	DB						-2.61	
	EB						-0.58	
	MM						1.03	
	Total	**0.00**	**0.00**	**76.00**	**63.73**	**0.59**	**-8.01**	**20.28**

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