Russell Research / Ranks and Commentary

PANAGORA ASSET MANAGEMENT, INC.

PRODUCT: DYNAMIC SMALL CAP CORE

ASSET CLASS	GEOGRAPHPIC EMPHASIS	STYLE	SUBSTYLE
Equity	US	Small Capitalization	Market Oriented

OVERALL EVALUATION

1 **2** 3 4

Review

We recommend that mutual clients actively evaluate replacement managers.

Target Excess Return: 75 bp
Target Tracking Error: 300 bp
Time Period: Four Years
Russell Assigned BenchMark: RUSSELL 2000

Expected Performance Pattern

The product is expected to perform well in markets that reward stock-level fundamentals and will likely lag during markets characterized by macro-driven returns. Speculative environments that favor very high valuation stocks are also expected to present a headwind for this strategy.

Manager Update

- During this onsite visit, Russell analysts received an update on the firm and its Dynamic Small Cap Core strategy.
- While the team appears to be taking appropriate steps to improve the quantitative model, there are still significant changes ahead and there is a heightened level of uncertainty about what the ultimate impact on the portfolio will be. The model changes that are currently underway include a revamping of the risk model and optimizer. The intent is to decrease the team's reliance on the off the shelf version of Barra, which should help reduce the portfolio's commonality with the products of other quantitative investors. While this would be a favorable outcome, our observations of other firms have shown that this is not a trivial task and will require a substantial amount of time and effort. While these changes could very well be positive in the end, there is not enough clarity about their ultimate impact at this time.
- While they are not vastly different than what we have seen from favorably-ranked quantitative peers, we expect the changes that the Dynamic Small Cap Core team is making to the long term stock selection model to have a marginally positive impact. In particular, the increased focus on unique data sources and a more detailed global view of each company's revenue breakdown are positive developments.
- The emphasis placed on the short term trade timing model appears to be another area of improvement. The short term model was fully implemented in March 2009, but continues to be refined and its impact on the portfolio has

LOW ① ② ③ ④ ⑤ HIGH

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been increasing. In combination with other enhancements to the trading effort, the short term model is expected to reduce the amount of slippage that had been occurring between the alpha model and the physical implementation of those insights.

- This meeting increased Russell's exposure to Jane Zhao, who has been leading the portfolio management effort for this product since June 2009. Jane displayed a strong understanding of the model, but did not come across as significantly more insightful than other quantitative peers.
- The firm's decision to no longer provide the Dynamic Small Cap Core team with dedicated research support is not viewed favorably. However, this is partially mitigated by our opinion that the research effort of PanAgora's Stock Selector team is impressive and the fact that results are shared with the Dynamic equity team.
- The product has experienced a significant decline in its asset base and is no longer closed.
- Due in large part to limited clarity around the significant model changes that are currently underway and the decrease in the resources dedicated to this strategy, we are downgrading the rank on the Dynamic Small Cap Core product to 'Review' from 'Retain'.

Investment Staff ① ② ❸ ④ ⑤

Eric Sorenson, PanAgora's President and CEO, is a knowledgeable and skilled quantitative investor, and experienced at building quantitative teams and products. The Director of the Dynamic Equity team, Ron Hua, and portfolio manager Jane Zhao are dedicated investment professionals committed to high quality quantitative research, model development, and implementation. The firm's decision to no longer provide the Dynamic Small Cap Core team with dedicated research support is not viewed favorably, although this is partially mitigated by the sharing of some factors that are identified by the research efforts of George Mussalli and the Stock Selector team. The firm has demonstrated a willingness to critically evaluate its own processes with an eye towards constant improvement.

Organizational Environment ① ❷ ③ ④ ⑤

The compensation plan allows key professionals (including Eric Sorensen, Ron Hua, and Eddie Qian) to own up to 20% of PanAgora equity. This equity plan lowers the risk of departure of key professionals, but is not very broad in distribution at this time. In addition, the level of assets managed in the Dynamic strategies has dropped considerably from its peak and now constitutes a fairly small percentage of PanAgora's overall assets under management.

The compensation plan ties the bonuses of other employees to the performance of PanAgora, which is an improvement over the previous structure. Changes to the board of directors of PanAgora allow for greater input of PanAgora professionals and a greater degree of independence from Putnam Investments, PanAgora's parent company. We view these changes positively.

Security Selection ① ② ❸ ④ ⑤

PanAgora's use of valuation, fundamental quality, and earnings momentum factors is conceptually appealing. While these factors are used by many peers, PanAgora is distinct in its approach by applying non-linear conditioning to several of the sub-factors. The process is distinguished by assigning a unique contextual model to each stock based on its specific risk characteristics.

PanAgora has been making significant changes to its model and, at this point in time, there is insufficient clarity as to

LOW ① ② ③ ④ ⑤ HIGH

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how these changes are going to impact stock selection. The recent and upcoming changes generally appear to be positive, but many are ones that favorably-ranked quantitative peers have already implemented. The team expects to significantly reduce its reliance on the Barra risk model, a move that should help differentiate the portfolio from those of peer managers.

Research ① ② ❸ ④ ⑤

The Dynamic team has significantly fewer dedicated resources than peers, but the team does have the ability to share some factors researched by PanAgora's Stock Selector team. The research process is collaborative in nature, and ideas are exchanged and enhanced across the firm. Not all factors are shared, however, as the two product suites have different investment philosophies. The Stock Selector team's ongoing research effort compares favorably to most quantitative firms, and the broader investment team benefits from a network of contacts across academia.

Asset Allocation ① ② ③ ④ ⑤

PanAgora manages its portfolios in a fully invested manner. Therefore, Russell is not assigning a rank to this category.

Sell Decision ① ② ③ ❹ ⑤

The systematic nature of the process enforces an objective sell discipline. The sell decisions are primarily dictated by the model with little manual override. Sells and trims are determined by either a decline in the excess return potential of an existing holding or high alpha potential of a new purchase candidate.

Portfolio Construction ① ② ❸ ④ ⑤

Russell believes the tight portfolio construction rules that were implemented at the end of 2007 limit tracking error and ultimately, excess return potential. The changes were made as part of an ongoing project to improve implementation. The expectation had been that once PanAgora resolved the issue, they would relax the constraints. Although there has been progress in resolving the implementation issues, the risk constraints are still tight enough that excess return potential is somewhat limited.

Implementation ① ② ❸ ④ ⑤

The product's asset base is significantly smaller than it was at its peak and does not pose a problem for implementation efficiency at this time. The efficiency of implementing research insights is suboptimal, however, since a significant portion of that research is being conducted by analysts who primarily support a different suite of products within PanAgora.

PanAgora has increased the venues and methods in which it trades, and timeliness metrics help determine the most appropriate execution strategy. The March 2009 introduction of a short-term trade timing model incorporating factors that are uncorrelated with the long term model has been a significant positive. Russell believes the changes made have helped to control transaction costs, market impact, and improve PanAgora's anonymity, but PanAgora admits that there is still work to be done.

LOW ① ② ③ ④ ⑤ HIGH

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LOW ① ② ③ ④ ⑤ HIGH