

Beyond Our Binders

**More fun with exported fund
activity data**

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The University of Michigan**

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The Conference Center at OCLC
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How did we get here?

- **Exporting FAR data from Millennium Acquisitions for all funds**
- **Creating a detailed financial report using Pivot Tables in Excel**

Exporting FAR data (#105490)

For all funds:

- **Change current mode to “Funds”**
- **Select “Current Funds” subfolder**
- **Select “Activity” tab**
- **Click “Export”**
- **Choose “Open in Excel”**

Orders



New



Limit



View



Edit



Media



Summary



Browse



Print



Close



Millennium



Orders



Claim/Cancel



Send



Rapid Receive



Recommend



Invoice



Import Invoices



Funds



Fiscal Close

AUTHOR
TITLE
PUB. INFO.

Index:

t Title

Search

Expand All

Remote

Select

#

ENTRIES

Fund Maintenance



Funds

Current Funds (85)

- Accounting/bk
- Accounting/oth
- Accounting/per
- Bindery/bks
- Bindery/pam
- Bindery/per
- Bloom 302
- Books
- Bus econ/bks
- Bus econ/oth
- Bus econ/per
- Bus hist/bks
- Bus hist/oth
- Bus hist/per
- Bus law/bks
- Bus law/oth
- Bus law/per
- Career res/bks
- Career res/oth
- Career res/per
- CIS/bks
- CIS/oth
- CIS/per
- Commerce Pa
- Communication
- Communication
- Communication

Funds Activity Adjustment

| | Appropriation | Expenditure | Encumbrance | Free Balance | Cash Balance |
|---------------------|---------------|-------------|-------------|--------------|--------------|
| Accounting/bks | \$0.00 | \$0.00 | \$304.00 | -\$304.00 | \$0.00 |
| Accounting/other | \$0.00 | \$1,161.23 | -\$1,161.23 | \$0.00 | -\$1,161.23 |
| Accounting/per | \$0.00 | \$724.36 | -\$724.36 | \$0.00 | -\$724.36 |
| Bindery/bks | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Bindery/pam | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Bindery/per | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Bloom 302865 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Books | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Bus econ/bks | \$0.00 | \$1,291.06 | \$402.55 | -\$1,693.61 | -\$1,291.06 |
| Bus econ/other | \$0.00 | \$311.64 | -\$311.64 | \$0.00 | -\$311.64 |
| Bus econ/per | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Bus hist/bks | \$0.00 | \$0.00 | \$67.00 | -\$67.00 | \$0.00 |
| Bus hist/other | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Bus hist/per | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Bus law/bks | \$0.00 | \$85.64 | \$688.67 | -\$774.31 | -\$85.64 |
| Bus law/other | \$0.00 | \$339.98 | -\$339.98 | \$0.00 | -\$339.98 |
| Bus law/per | \$0.00 | \$668.50 | -\$668.50 | \$0.00 | -\$668.50 |
| Career res/bks | \$0.00 | \$23.06 | \$219.14 | -\$242.20 | -\$23.06 |
| Career res/other | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Career res/per | \$0.00 | \$253.97 | -\$253.97 | \$0.00 | -\$253.97 |
| CIS/bks | \$0.00 | \$325.16 | \$446.22 | -\$771.38 | -\$325.16 |
| CIS/other | \$0.00 | \$135.93 | -\$135.93 | \$0.00 | -\$135.93 |
| CIS/per | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Commerce Park | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Communication/bks | \$0.00 | \$0.00 | \$51.62 | -\$51.62 | \$0.00 |
| Communication/ot... | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Communication/per | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Corp strat/bks | \$0.00 | \$1,344.76 | \$448.37 | -\$1,793.13 | -\$1,344.76 |
| Corp strat/other | \$0.00 | \$328.89 | -\$328.89 | \$0.00 | -\$328.89 |
| Corp strat/per | \$0.00 | \$97.85 | -\$97.85 | \$0.00 | -\$97.85 |
| Course Reserve | \$0.00 | \$0.00 | \$158.35 | -\$158.35 | \$0.00 |
| Databases | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| EDB from CM acct. | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |

Up Directory

Millennium



Orders



Claim/Cancel



Send



Rapid Receive



Recommend



Invoice



Import Invoices



Funds



Fiscal Close

Fund Maintenance



Print



Export



Close



Millennium



Orders



Claim/Cancel



Send



Rapid Receive



Recommend



Invoice



Import Invoices



Funds



Fiscal Close

- Funds
 - Current Funds (89)
 - Accounting/bk
 - Accounting/oth
 - Accounting/pe
 - Bindery/bks
 - Bindery/pam
 - Bindery/per
 - Bloom 302
 - Books
 - Bus econ/bks
 - Bus econ/oth
 - Bus econ/per
 - Bus hist/bks
 - Bus hist/other
 - Bus hist/per
 - Bus law/bks
 - Bus law/other
 - Bus law/per
 - Career res/bks
 - Career res/oth
 - Career res/per
 - CIS/bks
 - CIS/other
 - CIS/per
 - Commerce Pa
 - Communication
 - Communication
 - Communication

Funds Activity Adjustment

Report Header

☐ Show all

Start

Stop

Fund Maintenance



Print

Export

Close

- Funds
 - Current Funds (85)
 - Accounting/bk
 - Accounting/oth
 - Accounting/pe
 - Bindery/bks
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 - CIS/bks
 - CIS/other
 - CIS/per
 - Commerce Pa
 - Communication
 - Communication
 - Communication

Funds Activity Adjustment

Report Header

☐ Show all

Start

Stop

Getting ac

Getting activi

Select an export method

Open in Excel

Cancel



Millennium



Orders



Claim/Cancel



Send



Rapid Receive



Recommend



Invoice



Import Invoices



Funds



Fiscal Close



Arial

10

B*I*U

[List Bullets]

[List Numbered]

[List Disc]

[List Circle]

\$

%

[Decrease Indent]

[Increase Indent]

[Decrease Indent]

[Increase Indent]

[Decrease Indent]

[Increase Indent]

[Decrease Indent]

[Increase Indent]

A1

Fund Code

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
|----|-----------|-------------|----------|------|-----------|-----------|---------------------------|-------|--------|---------|---|---|---|---|---|
| 1 | Fund Code | Fund Nam | Date | Type | Voucher/E | Order Rec | Title | Appro | Exp | Enc | | | | | |
| 2 | acc/o | Accounting | 8/8/2006 | Exp | 11588 | 100721x | Reports of the United | | 40 | -40 | | | | | |
| 3 | acc/o | Accounting | 8/9/2006 | Exp | 11600 | 1159343 | Financial Accounting | | 8.37 | -8.37 | | | | | |
| 4 | acc/o | Accounting | 8/9/2006 | Exp | 11601 | 1149623 | Advances in accounti | | 104.16 | -104.16 | | | | | |
| 5 | acc/o | Accounting | 8/9/2006 | Exp | 11602 | 1043249 | Pass-through entity ta | | 148.72 | -148.72 | | | | | |
| 6 | acc/p | Accounting | 8/7/2006 | Exp | 11573 | 1150340 | Bulletin for internation | | 620.42 | -620.42 | | | | | |
| 7 | acc/p | Accounting | 8/9/2006 | Exp | 11598 | 1150522 | CA magazine | | 5.06 | -5.06 | | | | | |
| 8 | be/b | Bus econ/I | 8/7/2006 | Exp | 11579 | 1177515 | Consensus and comp | | 35.89 | | | | | | |
| 9 | be/b | Bus econ/I | 8/7/2006 | Exp | 11579 | 1177734 | Performance and proc | | 59.72 | | | | | | |
| 10 | be/b | Bus econ/I | 8/9/2006 | Exp | 11615 | 1178544 | Public administration | | 97.28 | -114 | | | | | |
| 11 | be/b | Bus econ/I | 8/9/2006 | Exp | 11620 | 1178532 | Owning Russia : the s | | 29.92 | -35 | | | | | |
| 12 | be/b | Bus econ/I | 8/9/2006 | Exp | 11625 | 1178271 | Bayesian survival ana | | 81.08 | -95 | | | | | |
| 13 | be/b | Bus econ/I | 8/9/2006 | Exp | 11625 | 1178623 | Survival analysis usin | | 63.98 | -74.95 | | | | | |
| 14 | be/o | Bus econ/I | 8/7/2006 | Exp | 11573 | 1149647 | Advances in econome | | 116.83 | -116.83 | | | | | |
| 15 | be/o | Bus econ/I | 8/7/2006 | Exp | 11573 | 1149647 | Advances in econome | | 115.77 | -115.77 | | | | | |
| 16 | be/o | Bus econ/I | 8/7/2006 | Exp | 11573 | 115431x | NBER macroeconomi | | 79.04 | -79.04 | | | | | |
| 17 | car/b | Career res. | 8/7/2006 | Exp | 11577 | 1172633 | Peterson's internships | | 23.06 | | | | | | |
| 18 | car/p | Career res. | 8/9/2006 | Exp | 11599 | 1159860 | Sports market place | | 253.97 | -253.97 | | | | | |
| 19 | cis/b | CIS/bks | 8/9/2006 | Exp | 11603 | 1178660 | Enterprise service orie | | 51.2 | -51.2 | | | | | |
| 20 | cis/o | CIS/other | 8/9/2006 | Exp | 11601 | 1169221 | Advances in manager | | 135.93 | -135.93 | | | | | |
| 21 | cs/b | Corp strat/ | 8/7/2006 | Exp | 11575 | 1176432 | Board diversity / by S | | 97.54 | | | | | | |
| 22 | cs/b | Corp strat/ | 8/7/2006 | Exp | 11576 | 1177722 | The outsourcing hand | | 46.97 | | | | | | |
| 23 | cs/b | Corp strat/ | 8/7/2006 | Exp | 11579 | 1177552 | Global corruption repc | | 76.82 | | | | | | |
| 24 | cs/b | Corp strat/ | 8/7/2006 | Exp | 11579 | 1177710 | The offshore nation : s | | 34.14 | | | | | | |
| 25 | cs/b | Corp strat/ | 8/9/2006 | Exp | 11603 | 1178672 | Narratives of enterpris | | 64.03 | -64.03 | | | | | |
| 26 | cs/b | Corp strat/ | 8/9/2006 | Exp | 11615 | 1178398 | Idealized design : cre | | 23.95 | -27.99 | | | | | |
| 27 | cs/b | Corp strat/ | 8/9/2006 | Exp | 11615 | 1178416 | IT-enabled strategic m | | 81.04 | -94.95 | | | | | |
| 28 | cs/b | Corp strat/ | 8/9/2006 | Exp | 11620 | 1178283 | The Boston Consultin | | 25.62 | -29.95 | | | | | |
| 29 | cs/b | Corp strat/ | 8/9/2006 | Exp | 11620 | 1178404 | If at first you don't suc | | 21.36 | -24.95 | | | | | |
| 30 | cs/b | Corp strat/ | 8/9/2006 | Exp | 11620 | 1178453 | Managing risks for co | | 23.91 | -27.95 | | | | | |
| 31 | cs/b | Corp strat/ | 8/9/2006 | Exp | 11620 | 1178490 | National systems of in | | 72.55 | -85 | | | | | |
| 32 | cs/b | Corp strat/ | 8/9/2006 | Exp | 11620 | 1178507 | Organizational realitie | | 76.82 | -90 | | | | | |
| 33 | cs/b | Corp strat/ | 8/9/2006 | Exp | 11620 | 1178519 | Outsourcing and offsh | | 81.04 | -94.95 | | | | | |
| 34 | cs/b | Corp strat/ | 8/9/2006 | Exp | 11625 | 1178568 | The secret language c | | 21.36 | -24.95 | | | | | |

Creating Pivot Tables

Invoke Wizard via Data menu

- **Step 1: Select data source and type of Pivot Report desired**
- **Step 2: Select data range**
- **Step 3: Select Pivot Report location and configure options**
- **Drag and drop fields from the Pivot Table Field List to the Pivot Table.**

Creating Pivot Tables (cont.)

- **What goes where:**
 - **Fields to summarize by go in Row and Column areas**
 - **Fund Code or Fund Name, Date, Report Date**
 - **Fields to summarize go in Data area**
 - **Appro, Exp, Enc**

Creating a DFR via Pivot Tables

- What goes where (our example):
 - Fund Code or Fund Name in Row Fields area
 - Appro, Exp, Enc in Data Items area
- Other calculations:
 - Free Balance (E): $=B_R - C_R - D_R$
 - Cash Balance (F): $=B_R - C_R$
 - % Expended (G): $=IF(B_R \neq 0, 1 - (E_R / B_R), "***")$

Do we have a traditional DFR?

- **So close!**
 - Hierarchies are the last element!
- **But how do we replicate them?**
 - Create categories in columns on data worksheet; use in Pivot Table
 - A hard way: nested IF functions
 - An impractical way: the fill handle
 - The Excel way: LOOKUP functions

LOOKUP functions

- **LOOKUP functions allow you to use tables as sources of information**
 - **VLOOKUP: data arranged in columns (vertically)**
 - **HLOOKUP: data arranged in rows (horizontally)**
 - **LOOKUP: either/or/both vertical and horizontal**

Deriving categories

- **Every indentation up to the funds themselves in an “All accounts” DFR is a new category/column**
 - Use same labels as traditional report
- **Other possibilities for categories**
 - Discipline/genre
 - Selector
 - Funding source

Deriving categories from a DFR

| ALL ACCOUNTS | | Approp |
|----------------------|-------|----------|
| MATERIALS ACCOUNT | | |
| BOOKS | | |
| Accounting/bks | | \$4, |
| Bus econ/bks | | \$5, |
| Career res/bks | | \$1, |
| | | |
| Replacements/bks | | |
| Stat mgt sci/bks | | \$2, |
| BOOKS | Total | \$99, |
| PERIODICALS | | |
| Accounting/per | | \$16, |
| Bus econ/per | | \$12, |
| Career res/per | | \$, |
| | | |
| Replacements/per | | |
| Stat mgt sci/per | | \$6, |
| PERIODICALS | Total | \$224, |
| OTHER | | |
| Accounting/other | | \$13, |
| Bus econ/other | | \$1, |
| Career res/other | | \$5, |
| | | |
| Replacements/other | | |
| Stat mgt sci/other | | \$, |
| OTHER | Total | \$196, |
| DATABASES | | |
| Electronic Databases | | |
| Electronic Database | | \$593, |
| Electronic Databases | Total | \$593, |
| DATABASES | Total | \$593, |
| MISCELLANEOUS | | |
| Binding | | |
| Bindery/bks | | |
| Bindery/per | | |
| Bindery/par | | |
| Binding | Total | |
| Commerce Park | | |
| Commerce Park | | |
| Commerce Park | Total | |
| MISCELLANEOUS | Total | \$, |
| MATERIALS ACCOUNT | Total | \$1,113, |
| ROSENTHAL ACCOUNT | | |
| Rosenthal 362604 | | \$35, |
| Rosenthal bind/bks | | |
| Rosenthal bind/per | | |

4 categorization levels

- Black: All accounts
- Red: primary account
- Blue: publication type
- Green: additional grouping

Constructing a table for VLOOKUP

- **1st column: All possible fund codes, padded to 5 characters with spaces**
- **Other columns: labels for the categories desired for each fund code**
 - Be exact across rows, including spaces
 - Blank cells permitted (use a space)
- **No header row needed**
- **Place in own worksheet or separate workbook**

VLOOKUP

- **Function format and arguments**
 - **VLOOKUP(lookup_value, table_array, col_index_num, range_lookup)**, where
 - *lookup_value*: what to find in the table
 - *table_array*: cell range for the table of values
 - *col_index_num*: column from which to select result relative to the table
 - *range_lookup*: enable forced matching

Referencing the VLOOKUP table

- In exported data worksheet
 - For header row, provide a unique entry
 - For other rows
 - `=VLOOKUP([Fund Code cell reference], [complete link to VLOOKUP table], [VLOOKUP column to populate cell], FALSE)`
 - Typical entry for row R (column L):
`=VLOOKUP(AR, 'VLOOKUP Table'!$1:$65536, 2, FALSE)`

Pivot Table with categorization

- **What goes where (our example):**
 - Categories, Fund Code in Row Fields area
 - Appro, Exp, Enc in Data Items area
 - Use Layout of Step 3 to configure
 - Calculate Free Balance, Cash Balance, and % Expended

Pivot Table with categorization (cont.)

- **EXAMPLE:** I'm interested in looking at this report for a specific Report Date
 - Drag Report Date to Page Fields

Other categorization examples

- **Selector**
 - Select individuals
 - Select funds
 - Aggregated reporting
- **Discipline**
 - Aggregated reporting

Pivot Table categorization summary

- **Create a (vertical) table of fund codes and their associated labels**
- **Use VLOOKUP to convert fund codes in exported data to labels in new columns for each row**
- **Create Pivot Tables based on new columns**

Conditional Formatting

- **Allows us to draw attention to cells that meet specified criteria**
- **Invoke via Format menu**
- **Change fonts, borders, colors, patterns**
- **Remove via Format menu**

Conditional formatting (cont.)

- **EXAMPLE:** Create a 4-tiered color system for free and cash balances relative to fund appropriation:
 - Less than 50% spent: no shading
 - 50% to 75% spent: yellow
 - 75% to 100% spent: orange
 - Greater than 100% spent: red

Conditional formatting (cont.)

- **EXAMPLE (cont.)**

- Select cell H5

- Format → Conditional Formatting

- Cell value is between $=.5 * E5$ and $=.25 * E5$

- Click Add>>

- Cell value is between $=.25 * E5$ and 0

- Click Add>>

- Cell value is less than 0

- Select colors

- Use fill handle; repeat for column I

Handling large datasets

- **Excel 2003 limitation: 65,536 rows**
- **Create basic Pivot Tables with smaller datasets**
- **Copy/paste Pivot Tables to new workbook**
- **Create new Pivot Tables using copied data**

Handling large datasets (cont.)

- **Keep Pivot Table configuration identical between data sets**
- **Create different Pivot Tables for different characteristics**
- **Add “Report Date”-like column to track original data sources**
- **Remove column totals via Options**
 - Or, don't copy them to new workbook

References

CustomGuide, Inc. Excel 2003 Personal Trainer. 1st ed. Sebastopol: O'Reilly, 2004.

Dalglish, Debra. Excel Pivot Tables Recipe Book. Berkeley: Apress, 2006.

Frye, Curtis. Microsoft Office Excel 2003 Step by Step. Redmond: Microsoft, 2004.

Stinson, Craig, and Mark Dodge. Microsoft Office Excel 2003 Inside Out. Redmond: Microsoft, 2004.

Any Questions?



Thank you!

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